GPS AutoSteer System
Installation Manual

Supported Vehicles

John Deere

9650 STS	9560 STS	9670 STS
9750 STS	9660 STS	9770 STS
	9760 STS	9870 STS
	9860 STS	

AutoTrac Ready

PN: 602-0237-01-B

LEGAL DISCLAIMER

Note: Read and follow ALL Instructions in this manual carefully before installing or operating the AutoSteer system.

Note: Take careful note of the information in the Safety Information section and throughout this manual.

The manufacturer disclaims any liability for damage or injury that results from failure to follow the instructions and warnings set forth herein.

Please take special note of the following warnings:

1. There is NO obstacle avoidance system included in the manufacturer's product. Therefore, users must always have an operator on the equipment when the AutoSteer system is in use to look for any obstacles including people, animals, trees, ditches, buildings, etc.
2. During installation of the AutoSteer system and during the Calibration and Tuning processes the vehicle's wheels turn from side to side and the vehicle moves. Be sure that all people and obstacles are clear of the vehicle before installation, calibration and tuning, or use of the AutoSteer system.
3. Use of the AutoSteer system is NOT permitted while equipment is on roads or in public areas. Follow the instructions set forth below for ensuring that the system is OFF before driving on roads or in public areas.

Special Requirements

Tools

This list consists of special tools required to complete the installation. The installer should have a complete set of common installation tools.

1/4” Allen Wrench	11/16” open wrench	8mm socket and ratchet
3/16” Allen Wrench	3/8” open wrench	10mm socket and ratchet
5/32” Allen Wrench	9/16” open wrench (2x)	13mm socket, ratchet and extension
1/8” Allen Wrench	1/2” open wrench	15mm socket and ratchet
4mm Allen Wrench	7/16” open wrench	16mm socket and ratchet
5mm Allen Wrench	1/2” socket and rachet	24mm socket and ratchet
3/16” open wrench	13mm open wrench	Tape measure (12ft/3.6 m minimum)
7/8” open wrench	15mm open wrench	Ten Foot Ladder (3 meter)
#1 Phillips screwdriver	16mm open wrench	Hacksaw with steel cutting blade
#2 Phillips screwdriver	24mm open wrench	Wire cutter small
#2 Phillips Stubby Screwdriver	Cleaning brush	Cleaning rags
Electrical Tape		

Safety Information

Warning Alerts

The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by failure to adhere to the following safety requirements:

- As the operator of the vehicle, you are responsible for its safe operation.
- The GPS steering system is *not* designed to replace the vehicle's operator.

Tighten all screws, bolts, nuts and cable connections after the final assembly of the GPS steering system on the vehicle.

⚠ WARNING

To avoid electrical shock hazards, remove the roof module from the vehicle before driving under low structures or low electrical power lines.

⚠ WARNING

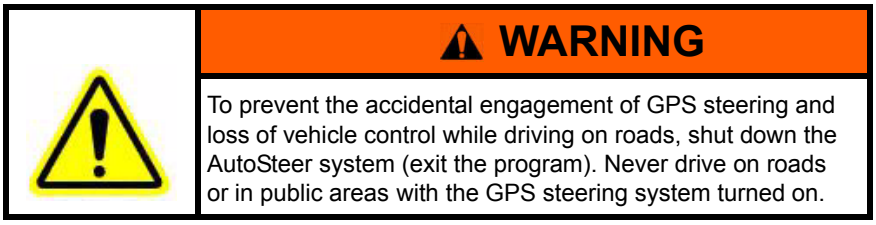
To prevent injury from falling, ensure you are in a stable position on the vehicle when installing or removing the roof rail and roof module. If the vehicle does not provide a safe platform, use a ladder to safely access the vehicle roof while installing or removing the roof rail and roof module.

⚠ WARNING

To prevent the vehicle from running over a person, you must never leave the vehicle while the GPS steering system is engaged.

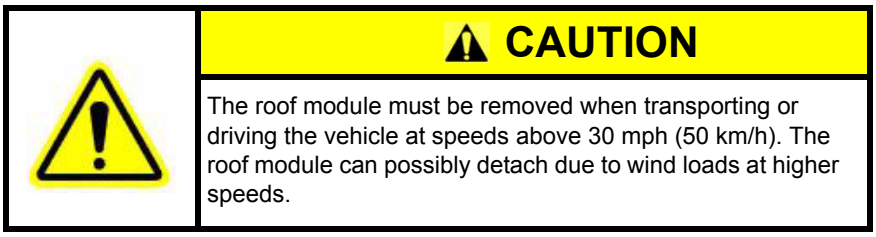
⚠ WARNING

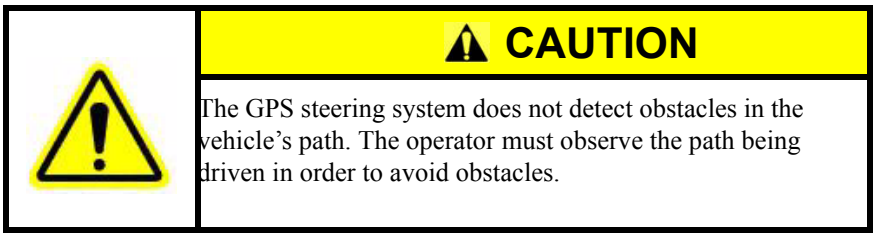
To understand the potential hazards associated with the operation of AutoSteer equipment read the provided documentation before installing the GPS steering system on a vehicle.

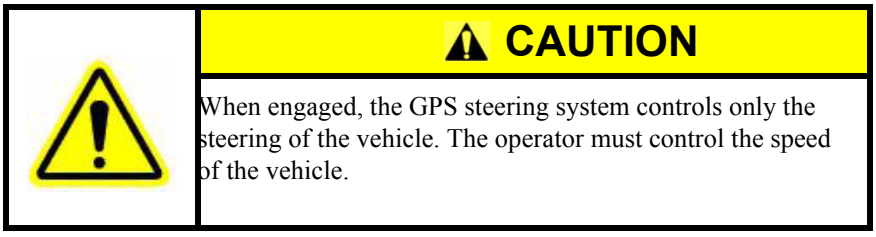

WARNING
To prevent the accidental engagement of GPS steering and loss of vehicle control while driving on roads, shut down the AutoSteer system (exit the program). Never drive on roads or in public areas with the GPS steering system turned on.

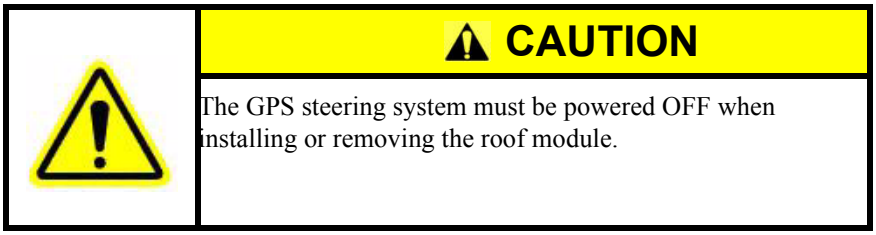
Caution Alerts

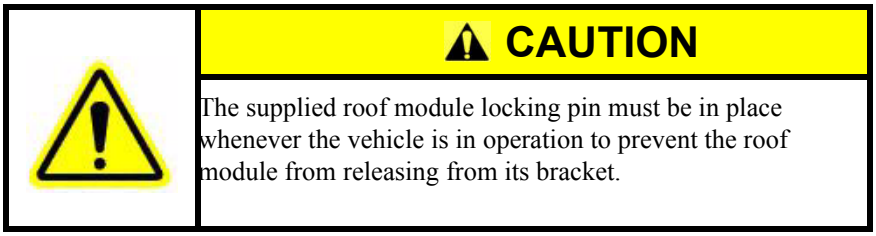
The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by failure to adhere to the following safety requirements:


CAUTION
The roof module must be removed when transporting or driving the vehicle at speeds above 30 mph (50 km/h). The roof module can possibly detach due to wind loads at higher speeds.


CAUTION
The GPS steering system does not detect obstacles in the vehicle's path. The operator must observe the path being driven in order to avoid obstacles.


CAUTION
When engaged, the GPS steering system controls only the steering of the vehicle. The operator must control the speed of the vehicle.




CAUTION
The supplied roof module locking pin must be in place whenever the vehicle is in operation to prevent the roof module from releasing from its bracket.

Vehicle Requirements

The vehicle must be AutoTrac[1] ready with the factory installed steering valve, Flow Meter sensor and steering wheel encoders.

The vehicle steering system and hydraulic system must be in good working order before installing the AutoSteer system. Check for loose or worn parts. Drive the vehicle before installing the AutoSteer system and confirm that it steers straight and the wheels can be turned from lock to lock. Check the steering system hydraulic hoses and connections to ensure there are no oil leaks.

The vehicle electrical system and battery must be in good working order.

We recommend that the vehicle be fully cleaned with a high pressure washer before installing the AutoSteer system. A clean vehicle will facilitate the overall installation and cable routing.

1. AutoTrac is a trademark of John Deere, Inc.

Important Information

Note: Tighten all screws, bolts, nuts and cable connections after the final assembly of the Steering System on the vehicle.

Technical Support

Refer to your owner's manual for technical support information.

Contact Information

Refer to your owner's manual for contact information.

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Installation Overview

This **Installation Overview** chapter contains part numbers, kit overview diagram, cabling diagram and the installation procedure for the Installation Kit.

- *Kit Overview*
  - *Assemblies*
    - *AutoSteer Installation Kit Components*
    - *Bracket Kit Components*
    - *Termination Kit*
- *Installation Procedure Outline*
- *Cable Diagram*

This installation guide describes the installation of the AutoSteer system on several models of John Deere STS AT Ready combines. The AutoSteer installation kit PN: 188-0032-01 is used on these series of combines. The vehicle specific sub-assemblies for the these combine series are listed in *Table 1-1*.

Table 1-1 Sub Assembly Part Numbers

John Deere 9000 Series STS AutoTrac Ready Combines
153-0002-01
152-0028-01

Kit Overview

Note: The vehicles supported in this manual share the same top-level Installation Kit PN: 188-0032-01 that include these sub-assemblies.

Figure 1-1 Installation Kit (PN: 188-0032-01)

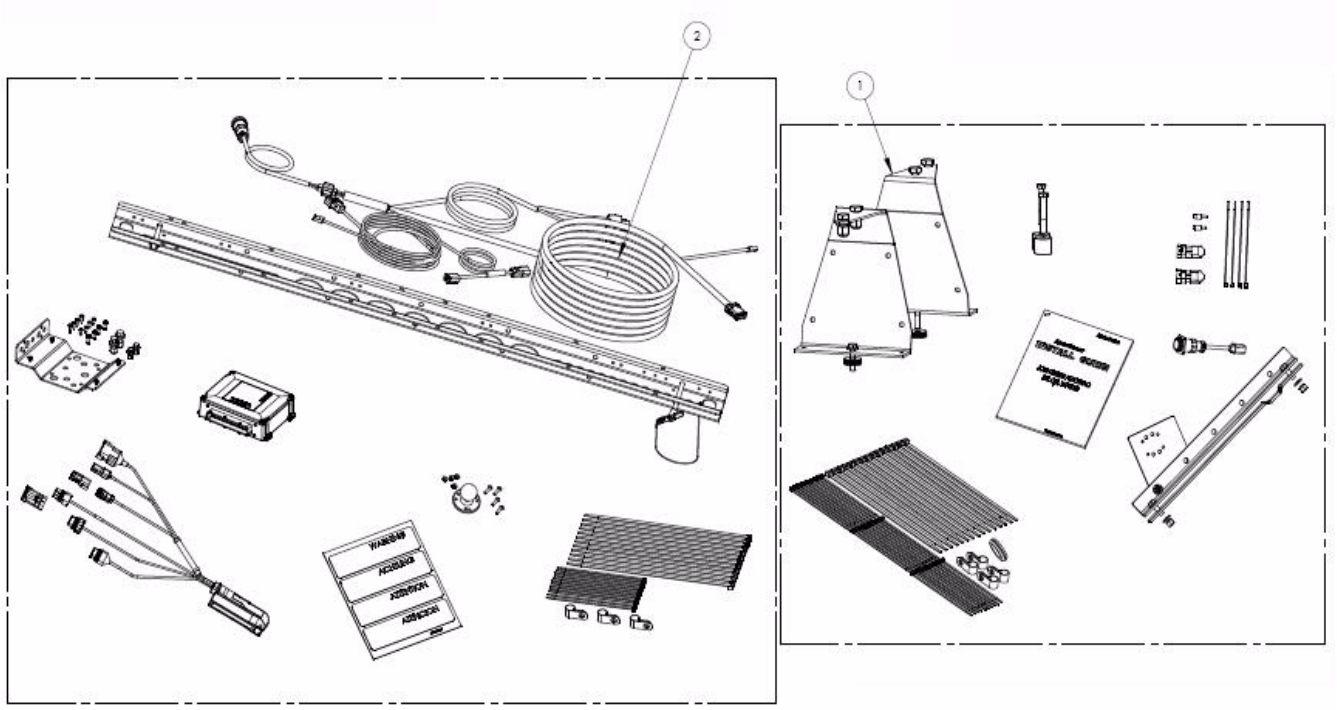


Table 1-2 Installation Kit Components (PN: 188-0032-01)

Item	Component	Part Number
1.	Bracket Kit	152-0028-01
2.	AutoSteer Installation Kit	153-0002-01

Assemblies

The vehicle installation kit contains the following components:

- *AutoSteer Installation Kit Components*
- *Bracket Kit Components*

AutoSteer Installation Kit Components

Figure 1-2 AutoSteer Installation Kit Sub-Assembly (PN: 153-0002-01)

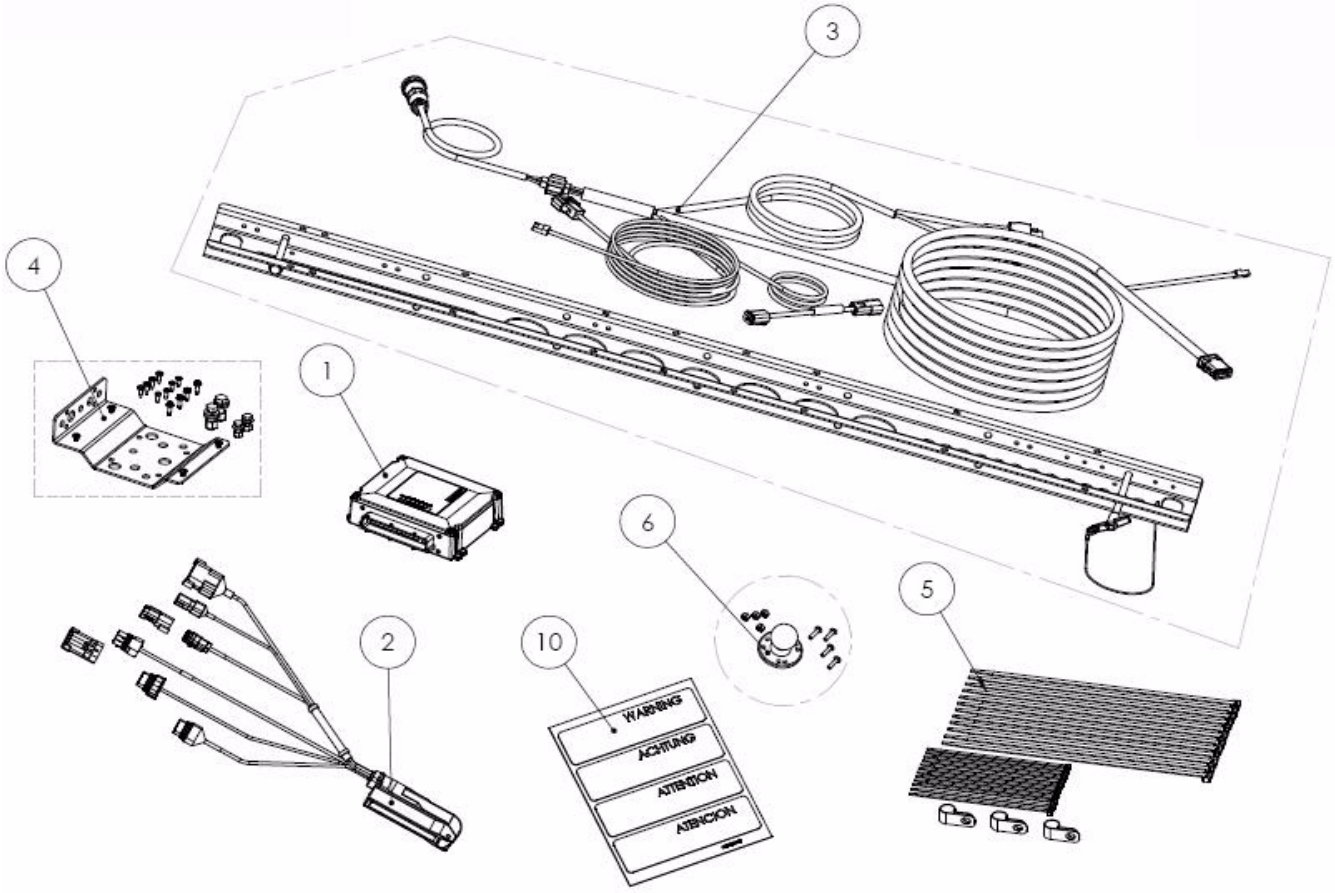


Table 1-3 AutoSteer Installation Kit Sub-Assembly Components (PN: 153-0002-01)

Item	Component	Part Number
1.	SA Module Assembly	200-0206-01
2.	SAM Harness	201-0240-02
3.	Common Installation Kit	200-0497-02
4.	SA Module Bracket	200-0190-01
5.	Mounting Hardware	200-0076-01
6.	RAM Base Kit	200-0508-01
10.	Warning Labels	603-0074-01

Bracket Kit Components

Figure 1-3 Bracket Kit Components (PN: 152-0028-01)

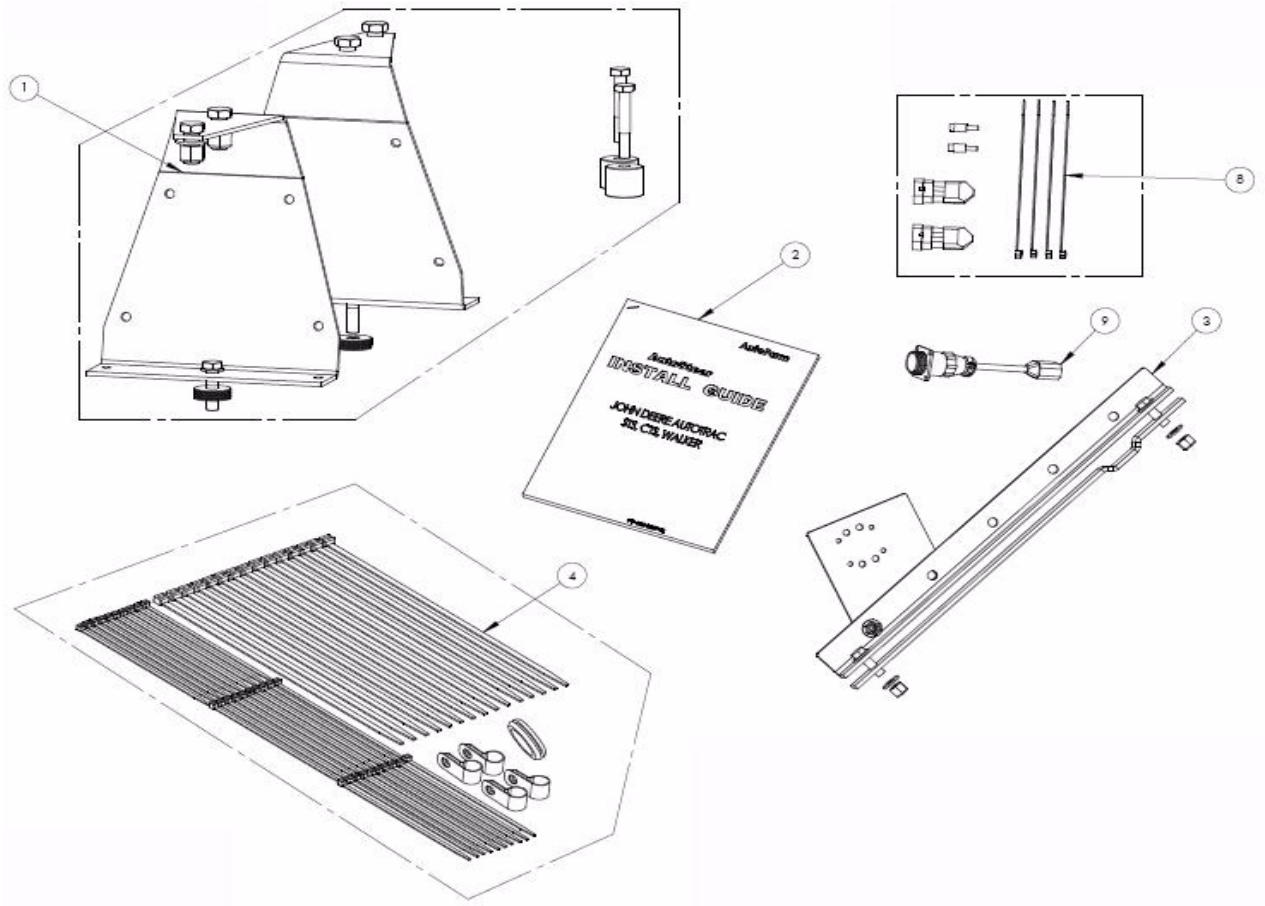


Table 1-4 Bracket Kit Components (PN: 152-0028-01)

Item	Component	Part Number
1.	Roof Bracket Kit	200-0156-01
2.	Installation Manual	602-0237-01
3.	Display Bracket Kit	200-0137-03
4.	Cable Routing Hardware	200-0174-01
8.	Termination Kit	200-0481-01
9.	Power Adapter Cable	201-0368-01

Termination Kit

Figure 1-4 Termination Kit Components (PN: 200-0481-01)

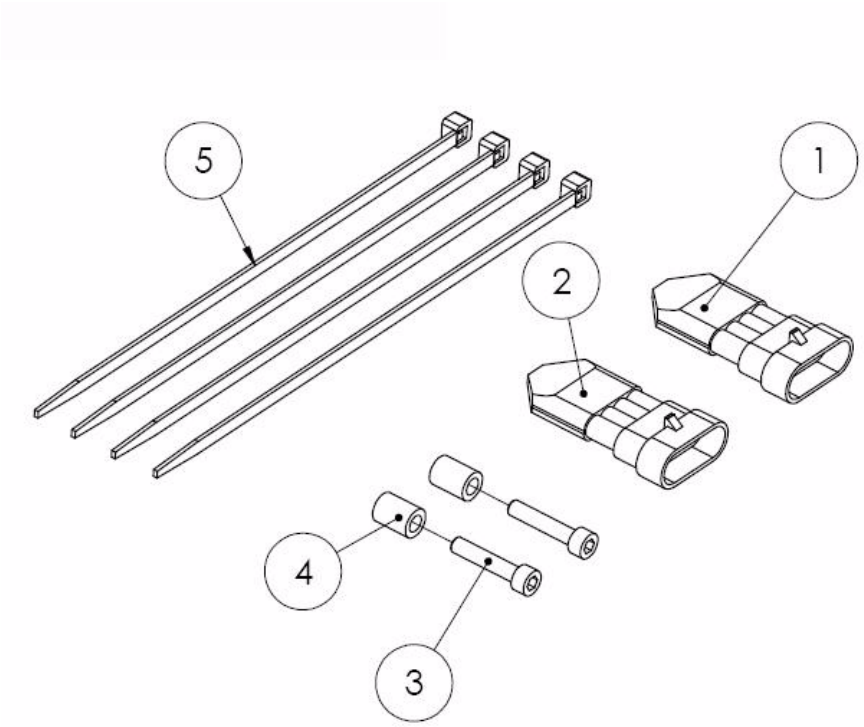


Table 1-5 Terminator Kit Components (PN: 200-0481-01)

Item	Component	Part Number
1.	Steering Encoder Terminator (High)	201-0241-01
2.	Steering Encoder Terminator (Low)	201-0242-01
3.	Flow Meter Spacer Screws	515-0013-01
4.	Flow Meter Spacers	500-0214-01
5.	Cables Ties	510-0015-01

Installation Procedure Outline

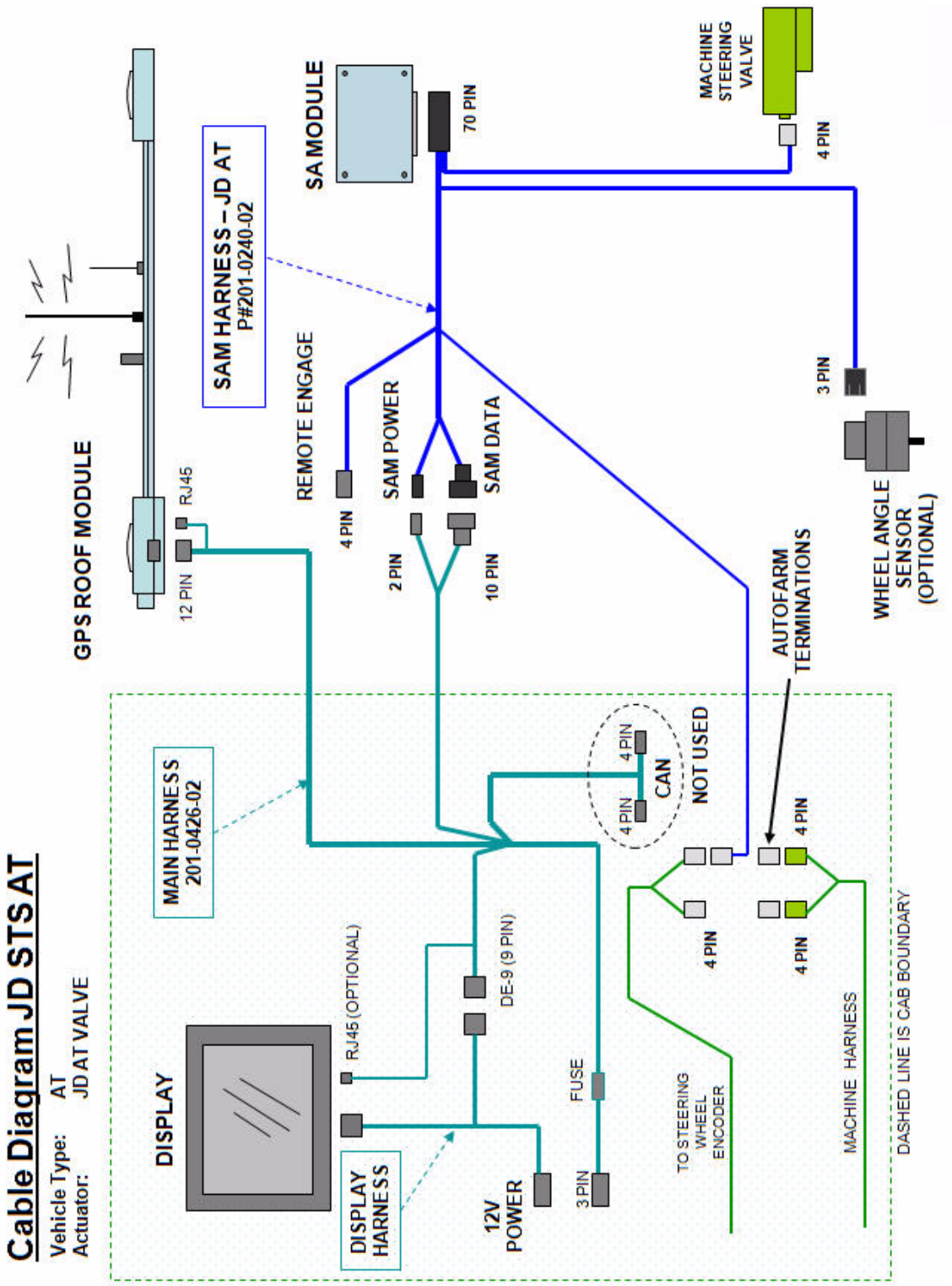
Note: The system interconnect cable diagram in the *Cable Diagram* on page 7 section of this chapter shows the AutoSteer electrical connections.

1. Verify shipped components.
2. Install the SA Module.
3. Install the roof rail on the cab roof.
4. Install the Roof Module on the roof rail.
5. Install the SA Module harness and route cables to the various sensors.
6. Route SA module data and power cable towards the cab.
7. Install the display bracket and the RAM mount ball inside the cab.
8. Install the display using a RAM mount arm.
9. Install the main data harness and route cables to roof module and power connector.

Note: Instructions for connecting the vehicle kit cables to the display can be found in the display owner's manual.

10. Connect the main harness to the display harness.
11. Connect the main harness to the SA Module harness (12 pin + 2 pin connectors).
12. Verify all connectors are properly coupled and secured.
13. Power ON the AutoSteer system.
14. Calibrate the vehicle.
15. Tune the vehicle.
16. Verify the system has been installed properly and operates satisfactorily.

Cable Diagram



Wheel Angle Sensor (WAS) Installation

This **Wheel Angle Sensor Installation** chapter information is provided in the following sections:

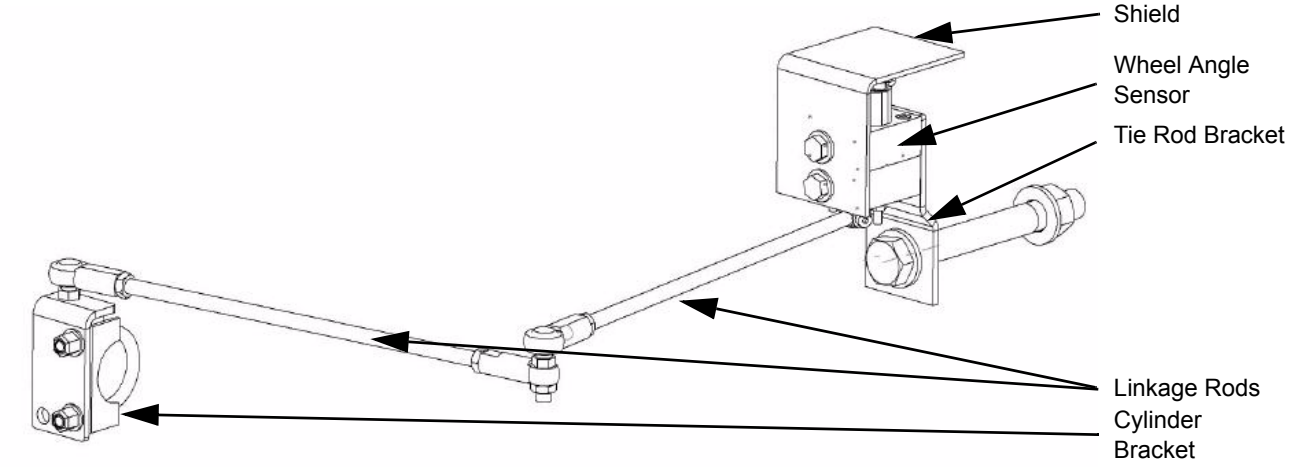
- *Wheel Angle Sensor Installation Procedure*
  - *Mounting Wheel Angle Sensor Hardware*
  - *Cutting Linkage Rods to Length*
  - *Assembling Linkage Rod Hardware*
  - *Attaching and Adjusting Wheel Angle Sensor Linkage Rods*

Note: The Wheel Angle Sensor is optional equipment and is not provided with the installation kit. The Wheel Angle Sensor installation instructions are provided for special installations, when required.

Wheel Angle Sensor Installation Procedure

Figure 2-1 shows the 9000 STS AT Ready combine wheel angle sensor assembly fully assembled.

Figure 2-1 Wheel Angle Sensor Components



Mounting Wheel Angle Sensor Hardware

1. Find the Wheel Angle Sensor bracket mounting location.

Note: The bracket should be located on the vehicle's rear axle left side. See *Figure 2-2*.

Figure 2-2 Wheel Angle Sensor Bracket Location

2. Mount the Wheel Angle Sensor bracket. Secure with a bolt provided in your kit. See *Figure 2-3*.

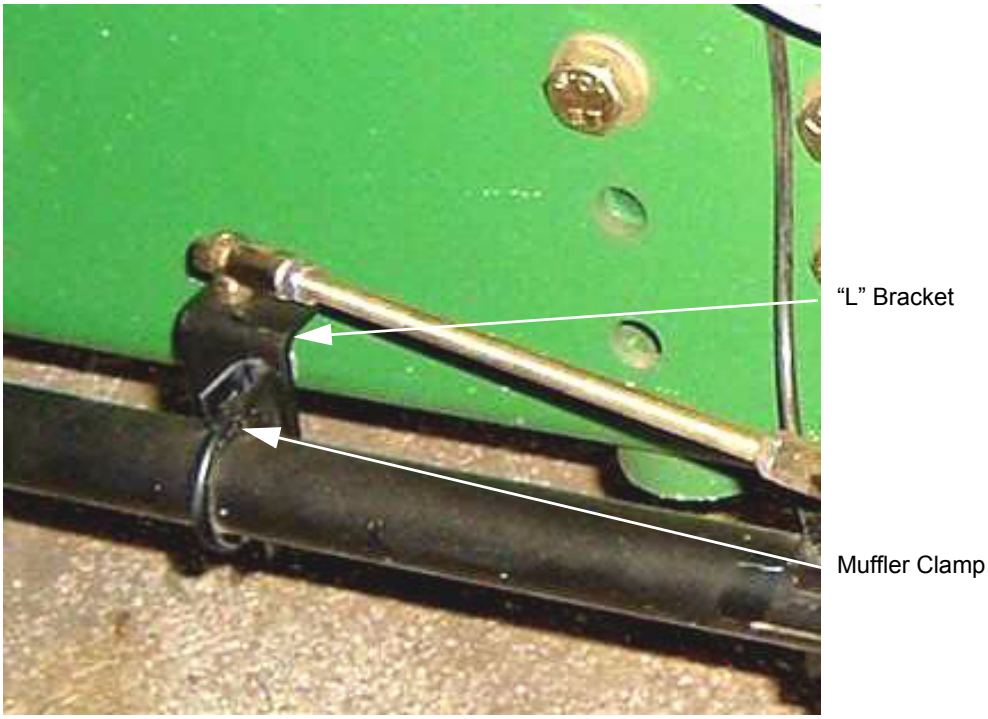
Figure 2-3 Wheel Angle Sensor Bracket Mounted

3. Install the wheel angle sensor on the bracket as shown in *Figure 2-4*.

Figure 2-4 Wheel Angle Sensor Mounted (shown with linkage rods attached)

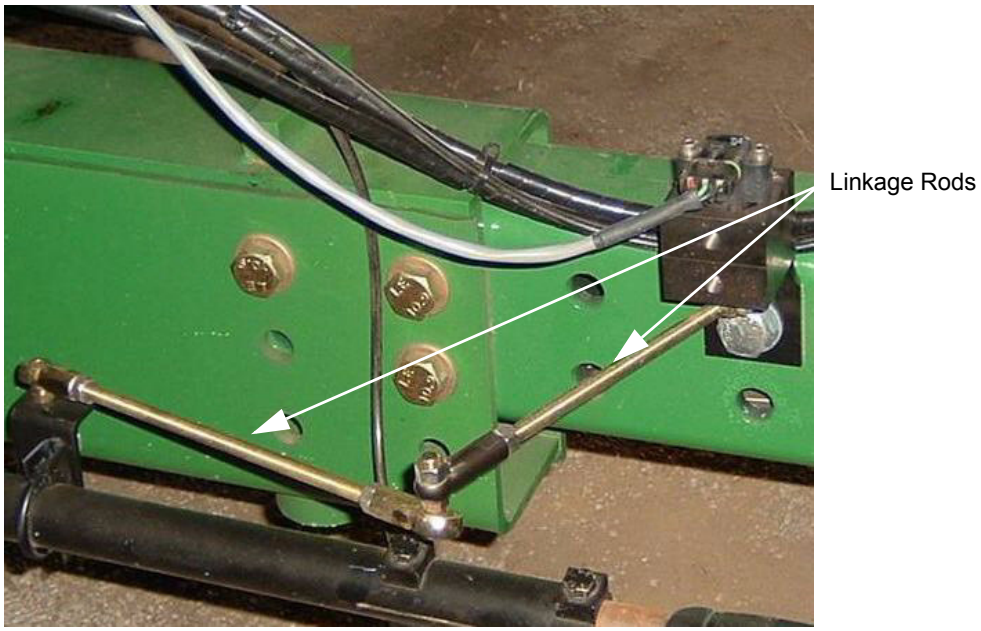
4. Install the linkage rod “L” bracket on the tie rod using a muffler clamp. See *Figure 2-5*.

Figure 2-5 Linkage Rod “L” Bracket



Note: The threaded linkage rods must be cut to the correct lengths before final assembly. The linkage rods are shown assembled in *Figure 2-6*. See *Table 2-1* and *Table 2-2* for the cut and assembled linkage rod lengths.

Figure 2-6 Wheel Angle Sensor Assembly Completely Assembled



Cutting Linkage Rods to Length

1. Measure and mark the two rods for cutting, according to the length shown in *Table 2-1*.

Table 2-1 Linkage Rod Cut Lengths

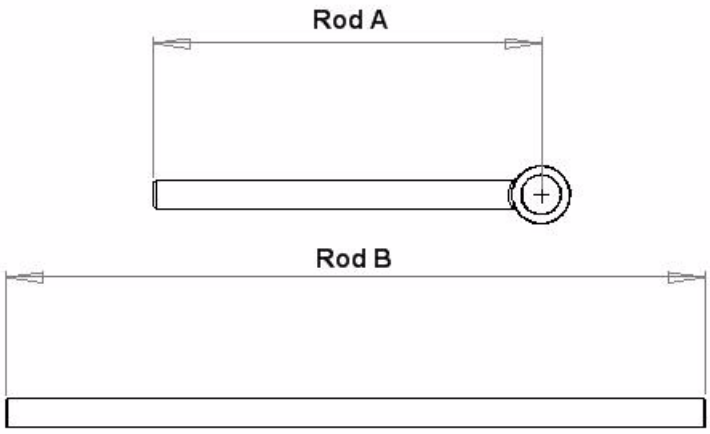
Item	Length
Rod A	5.7 inches (145 mm)[a]
Rod B	11.4 inches (290 mm)[a]

a. This measurement is the rod length prior to assembly with the ball joints.

Note: Before cutting the linkage rods, verify the wheel angle sensor brackets will attach to the vehicle as shown in this manual and they are attached the correct distance from any reference points shown. If this is not possible, do not cut the rods until it is determined if these lengths work for your installation. Due to possible variations in the mounting positions, these measurements could be different. These measurements are provided as a reference only. The installer is responsible for ensuring the rods are cut to the proper length.

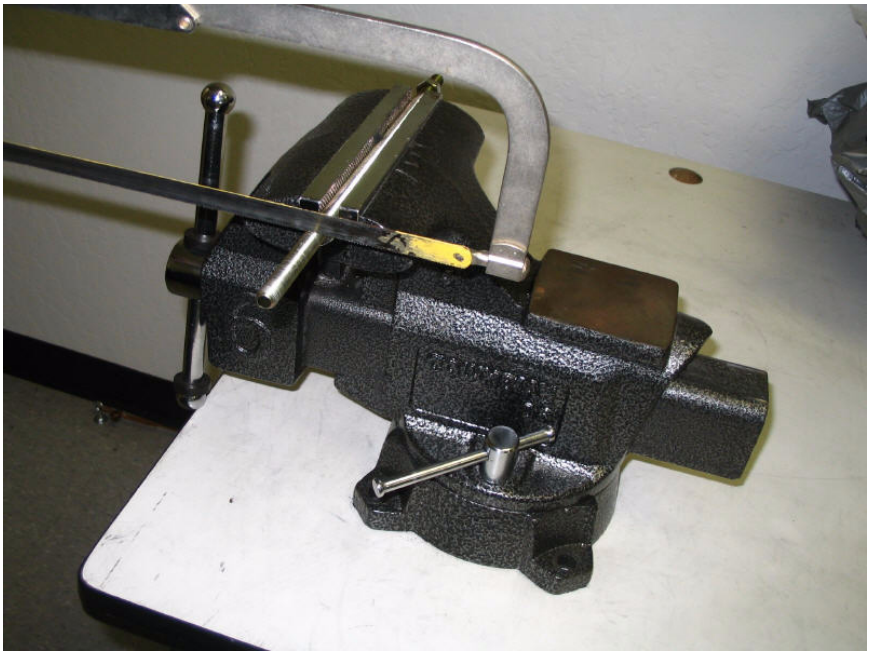
Note: *Figure 2-7* shows the measurement points used to properly cut the linkage rods.

Figure 2-7 Linkage Rod Cut Length Measurement Points



2. Use a hack saw to cut the linkage rod to length while it is held in a bench vise. See *Figure 2-8*.

Figure 2-8 Linkage Rod Cutting



Assembling Linkage Rod Hardware

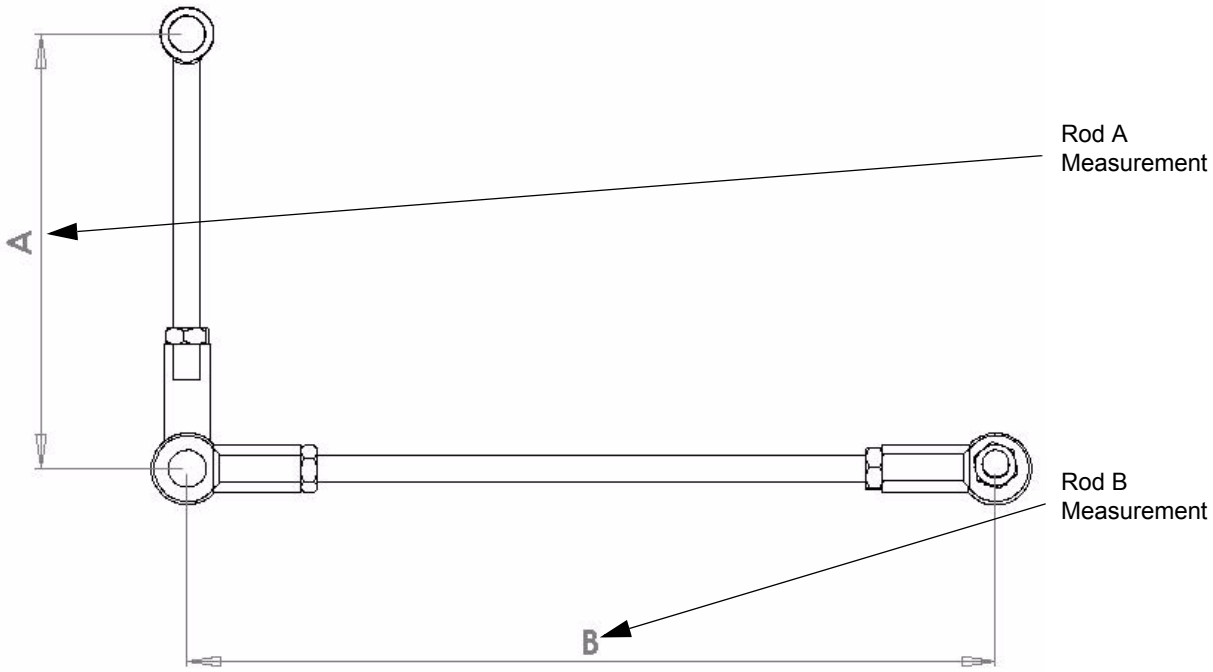
Note: The "after-assembly" center-to-center lengths of each linkage rod are shown in *Table 2-2*. *Figure 2-9* shows the measurement points for the assembled linkage rods.

Table 2-2 Assembled Linkage Rod Length

Item	Length
Rod A	6.7 inches (170 mm)[a]
Rod B	13.4 inches (340 mm)[a]

a. This measurement is the rod length after assembly with the ball joints.

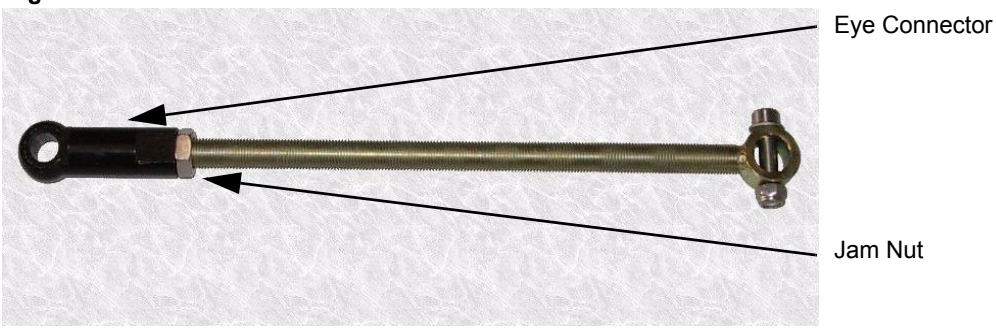
Figure 2-9 Linkage Rod (Assembled) Measurement Points



Note: The threaded rods must be cut to the correct lengths before final assembly.

1. Attach a jam nut to the end of Rod A. See *Figure 2-10*.
2. Connect the eye connector to the end of the wheel angle sensor rod. As shown in *Figure 2-10*.

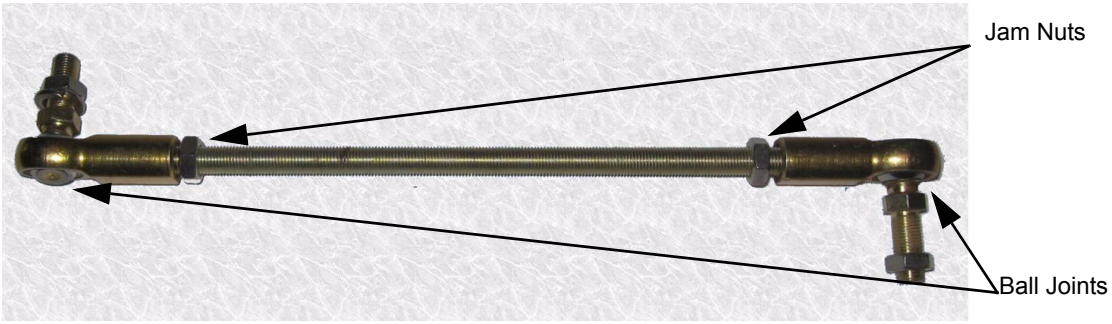
Figure 2-10 Rod A Assembled



3. Attach the jam nuts to each end of the linkage Rod B
4. Attach the ball joints to both ends of the linkage arm as shown in *Figure 2-11*.

Note: The bolts for the ball joints should be facing the opposite direction as shown in *Figure 2-11* for this installation.

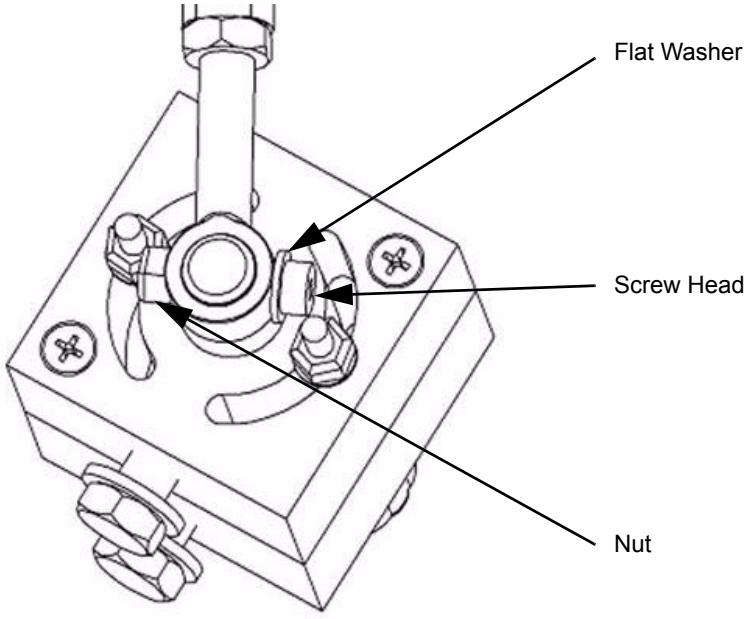
Figure 2-11 Linkage Rod Assembled



Attaching and Adjusting Wheel Angle Sensor Linkage Rods

1. Install the short linkage arm on the wheel angle sensor shaft.
2. Ensure a flat washer is placed under the screw head when attaching the linkage rod to the sensor shaft. See *Figure 2-12*.

Figure 2-12 Washer on Shaft Screw

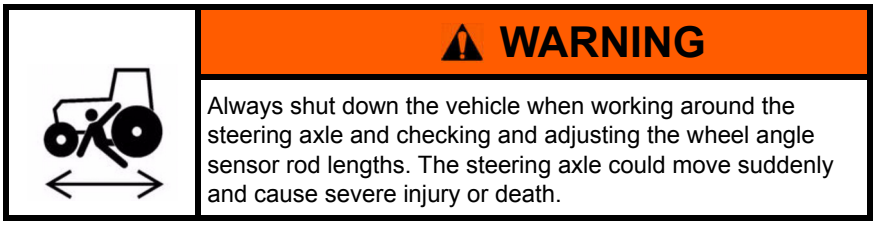


Note: The washer should be on the bolt head side and not the nut side of the assembly.

3. Do not turn the rear wheels or drive the combine before the wheel angle sensor has been adjusted using the AutoFarm Calibration screens. The potentiometer can only rotate a maximum of 180 degrees and if it is rotated beyond its mechanical stops, it will be permanently damaged.
4. Install the long threaded linkage on the tie rod bracket using a ball joint.
5. With the linkage rods disconnected, turn the steering wheel so that the wheels are centered (the vehicle will travel straight ahead when moving).
6. Temporarily attach the linkage rods.

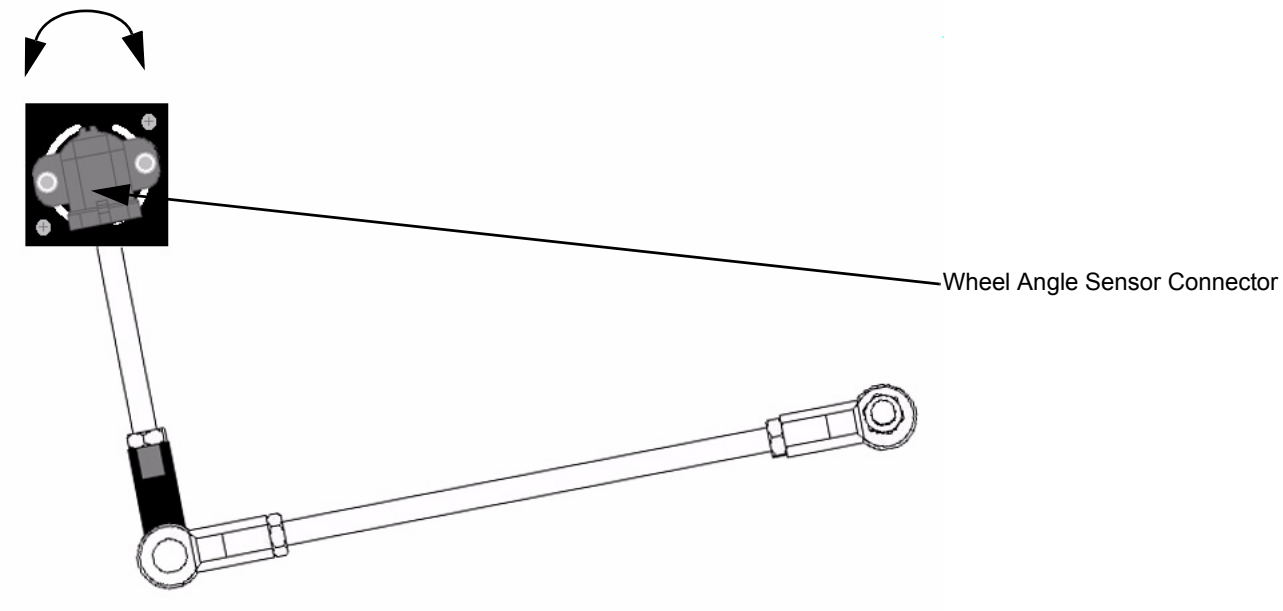
Note: Never attach the linkage rods to wheel angle sensor rod and turn the steering wheels manual or automatically until the fit has been verified. The linkage rods must remain apart while the steering wheels are turned to the maximum right and left positions and then temporarily attached at these positions. Failure to do this may cause the wheel angle sensor or vehicle to become damaged.

Note: After the linkage rods are assembled in the following steps, they should move freely without touching any other parts and without overextending. Make any necessary adjustments to the linkage rods if there is an interference problem.


WARNING
Always shut down the vehicle when working around the steering axle and checking and adjusting the wheel angle sensor rod lengths. The steering axle could move suddenly and cause severe injury or death.

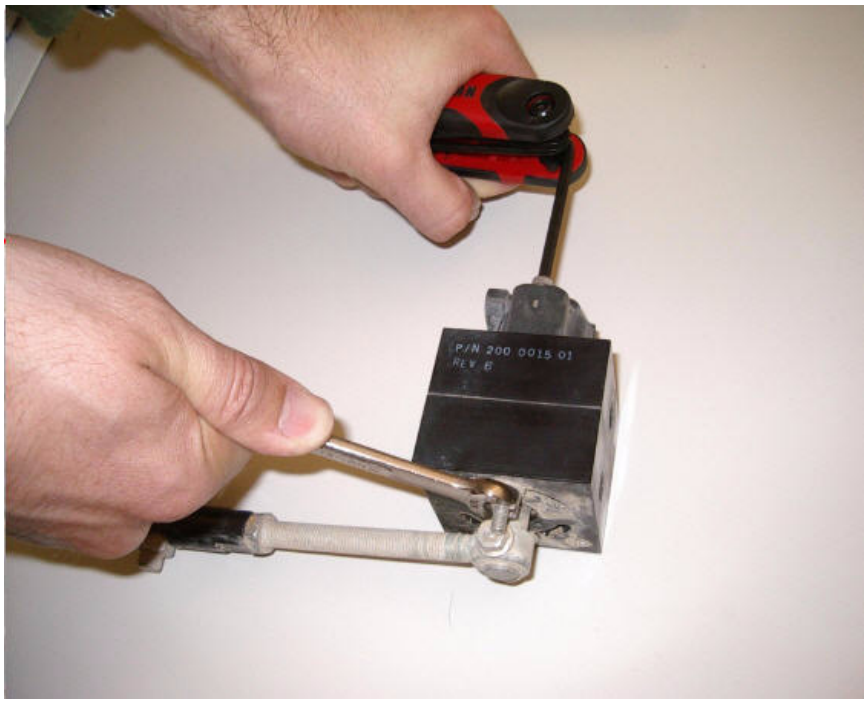
7. Rotate the wheel angle sensor potentiometer on top of the mounting block so that the wire connector is parallel to the wheel angle sensor rod.

Figure 2-13 Adjusting Potentiometer Angle



8. Tighten the two screws that secure the potentiometer on the wheel angle sensor, after final adjustments. Use a 5/32” hex key and a 3/8” wrench. See *Figure 2-14*.

Figure 2-14 Wheel Angle Sensor Potentiometer (shown on bench)



9. Disconnect the linkage rods and turn the steering wheel manually to the full left position.

10. Reattach the linkage assembly and verify that the sensor will not be damaged. See *Figure 2-15*.

11. Adjust the rod lengths as necessary.

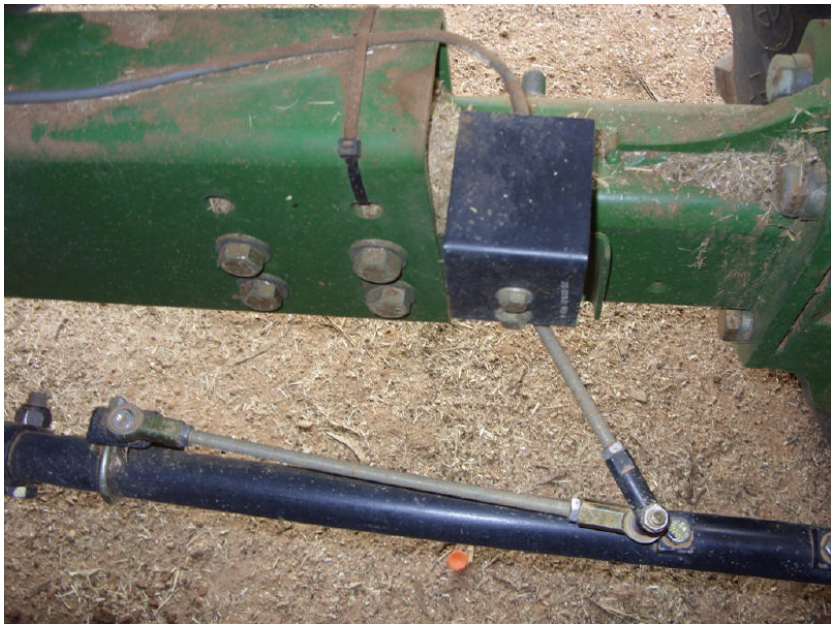
Figure 2-15 Wheels Turned Full Left

12. Disconnect the linkage rods and turn the steering wheel manually to the full right position. See *Figure 2-16*.

13. Reattach the linkage assembly and verify that the sensor will not be damaged.

14. Adjust the rod lengths as necessary.

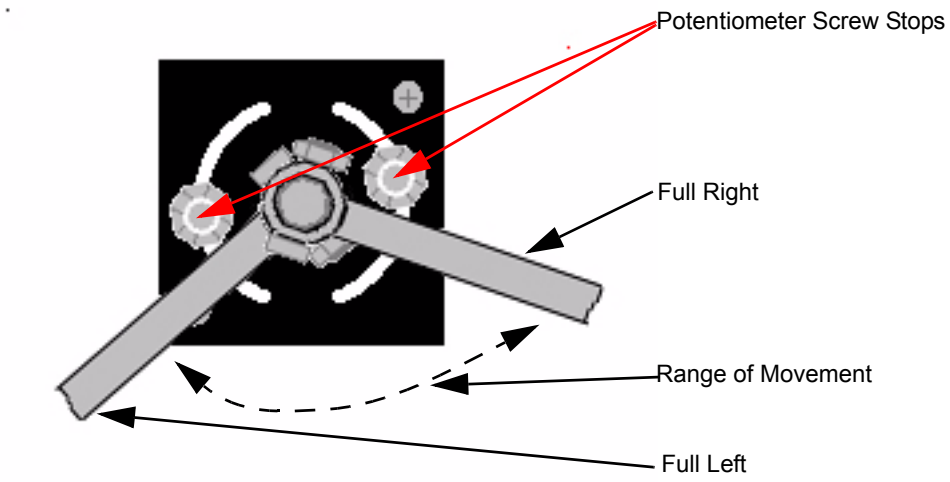
Figure 2-16 Wheels Turned Full Right



15. Repeat *Step 5.* through *Step 14.* until the rod lengths have been adjusted and the potentiometer is centered to obtain the maximum sensor movement.

Note: The maximum movement is reached when the wheel angle sensor rod sweeps from approximately 3/16 inch (5mm) from both bolt heads holding the potentiometer on to the block when the wheels are turned to the maximum right and left positions. See *Figure 2-17*.

Figure 2-17 Maximum Sensor Movement (as seen from bottom)



Note: An Ohm meter can also be used to determine if there is enough sensor movement. Connect the Ohm meter to pins A and B of the wheel angle sensor. Measure the Ohm reading at the maximum left and right position. After subtracting the smaller number from the larger number, there should be at least a 3.75 Kohms change. The reading should also never go below 1.6 or higher than 6.6 Kohms as this is reaching the limits of the potentiometer and could damage the sensor.

---

16. Tighten all jam nuts on the threaded rods.

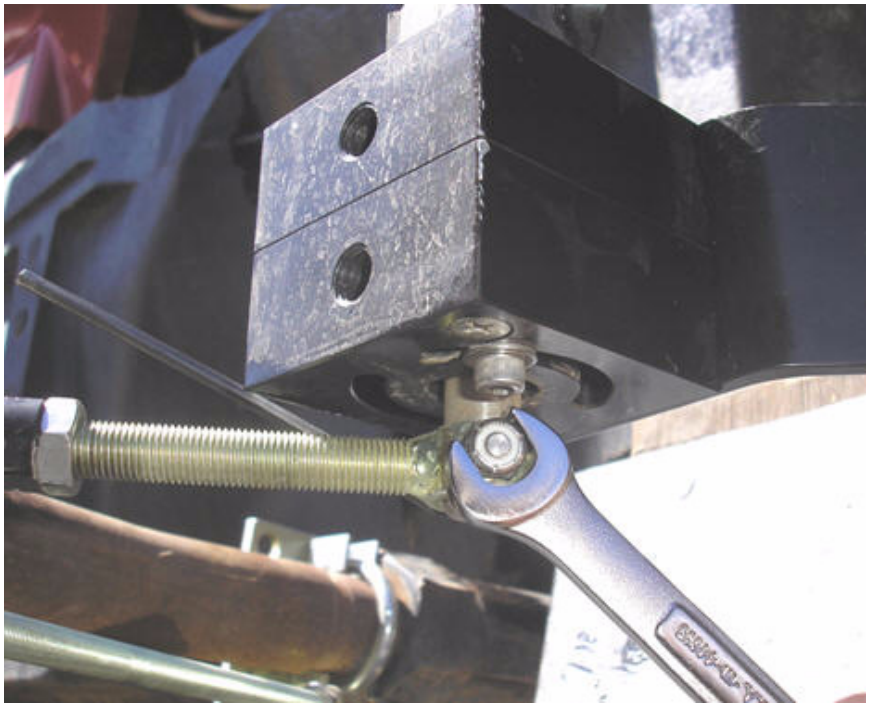
17. Tighten the bolt securing the two linkage rods together. See *Figure 2-18*.

Figure 2-18 Linkage Rod Ball Joint Bolt (different vehicle shown)

18. Tighten the screw on the sensor shaft. Use a 1/8” hex key and a 3/8” wrench. See *Figure 2-19*.

Note: The rod should aim towards the vehicle front.

Figure 2-19 Wheel Angle Sensor Shaft Tightening



19. Secure the cable along the bracket top using cable ties, after the SAM harness is installed.

Note: The AutoSteer system must be fully functional before you can perform *Step 20*.

---

20. Adjust the arm length until you get approximately 48000 counts from the wheel angle sensor.

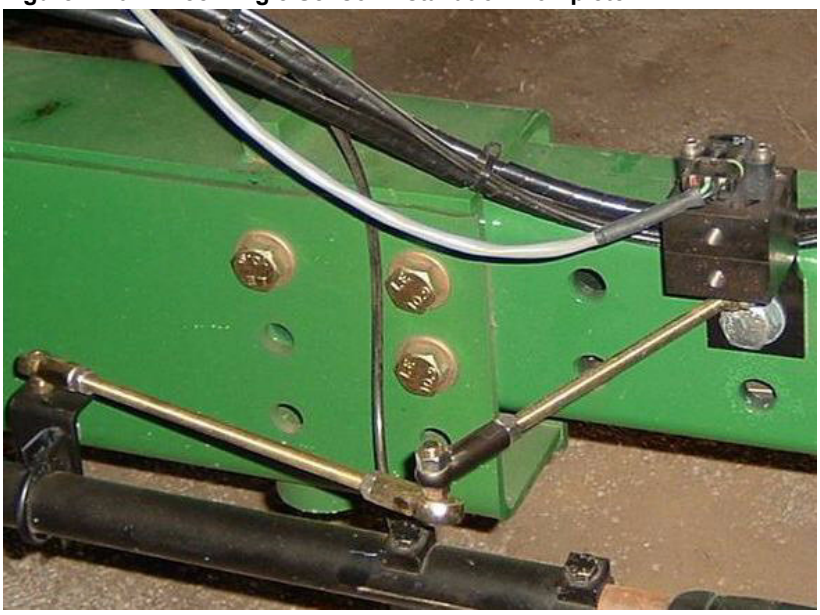
Note: If necessary, shorten Rod A to increase the wheel angle sensor counts.

---

21. Tighten all jam nuts and fasteners.

22. *Figure 2-20* shows the completed Wheel Angle Sensor installation.

Figure 2-20 Wheel Angle Sensor Installation Complete



SA Module Installation

This **SA Module Installation** chapter contains information for mounting the SA Module bracket and installing the SA Module.

Note: The following instructions provide possible SA Module mounting instructions. However due to the variety of options available on vehicles and the possible configuration differences, it may be necessary to install the SA Module in an alternative location. If an alternative location is required, choose a location where the SA Module can be protected from damage from moving parts or crop debris and excessive moisture from weather and cleaning equipment.

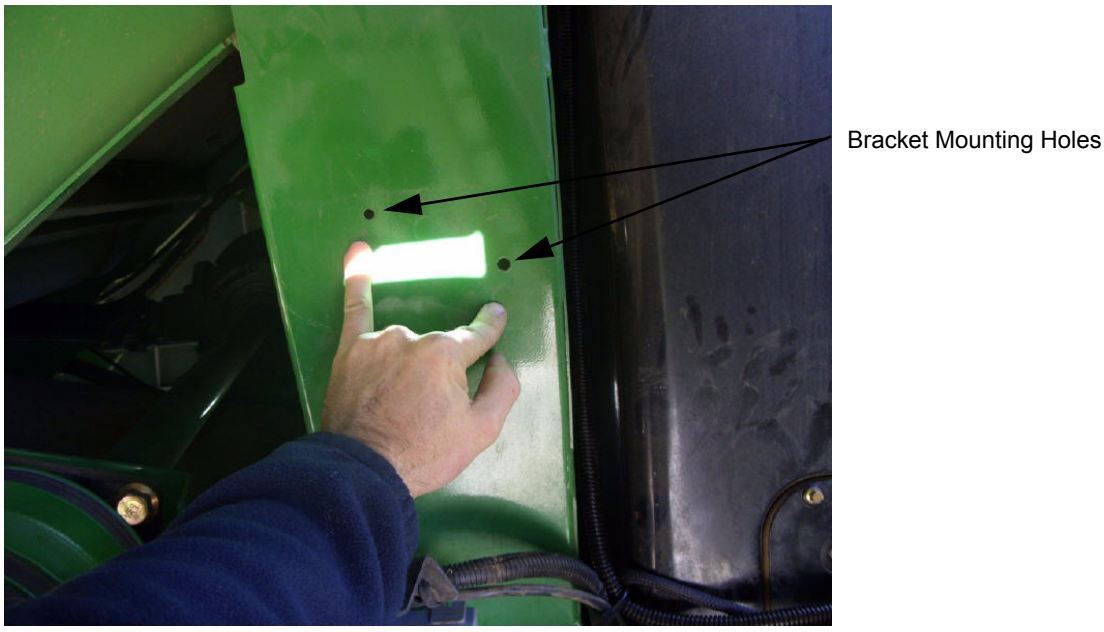
---

1. Mount the SA module bracket on the vehicle frame side. See *Figure 3-1*.

Figure 3-1 SA Module Location

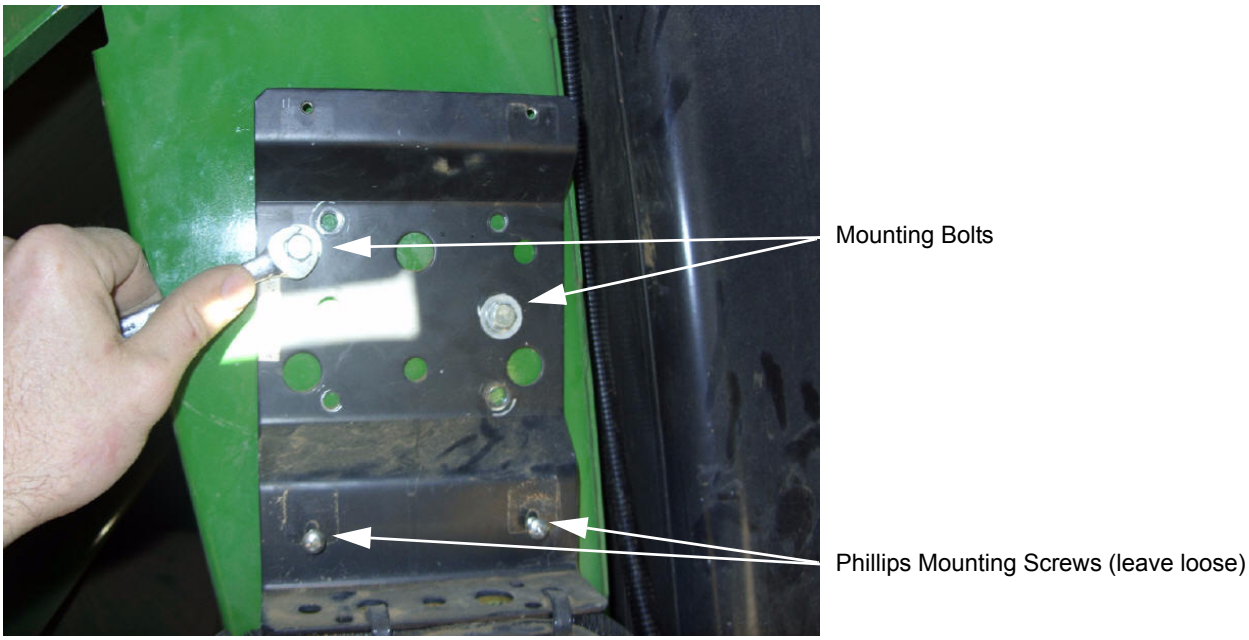
2. Identify the holes on the grain tank support. See *Figure 3-2*.

Figure 3-2 Mounting Holes



3. Attach the SA Module bracket as shown using the M8 x 20 bolts, nuts and washers as shown in *Figure 3-3*.
4. Tighten with a 13mm socket and a 13mm wrench. See *Figure 3-3*.

Figure 3-3 SA Module Bracket Mounted

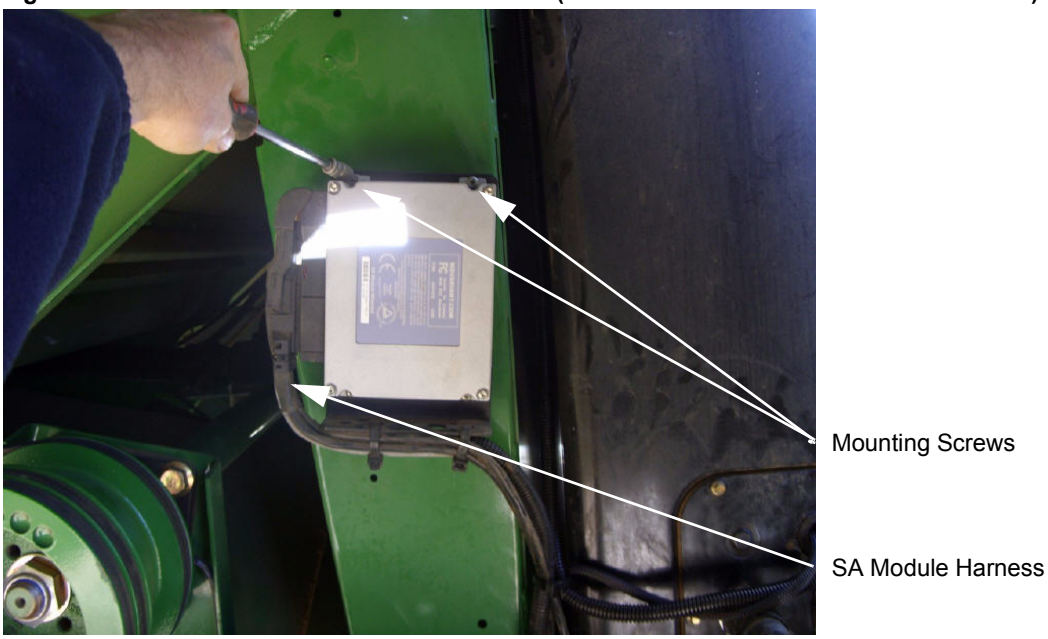


5. Slide the SA Module into place.

6. Mount into place by installing the other two screws. See *Figure 3-4*.

Note: Leave the phillip screws loose until after you have routed the SA Module harness and have connected it to the SA Module.

Figure 3-4 SA Module Mounted on the Bracket (shown with SA Module Harness attached)



Note: *Figure 3-5* and *Figure 3-6* show the correct and incorrect SA Module installation orientation.

Figure 3-5 Correct SA Module Orientation

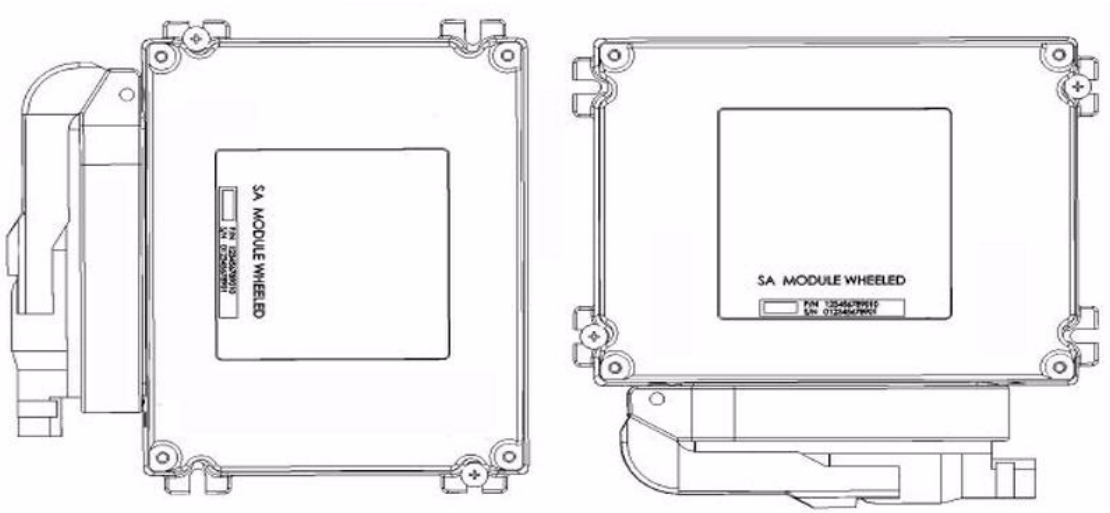
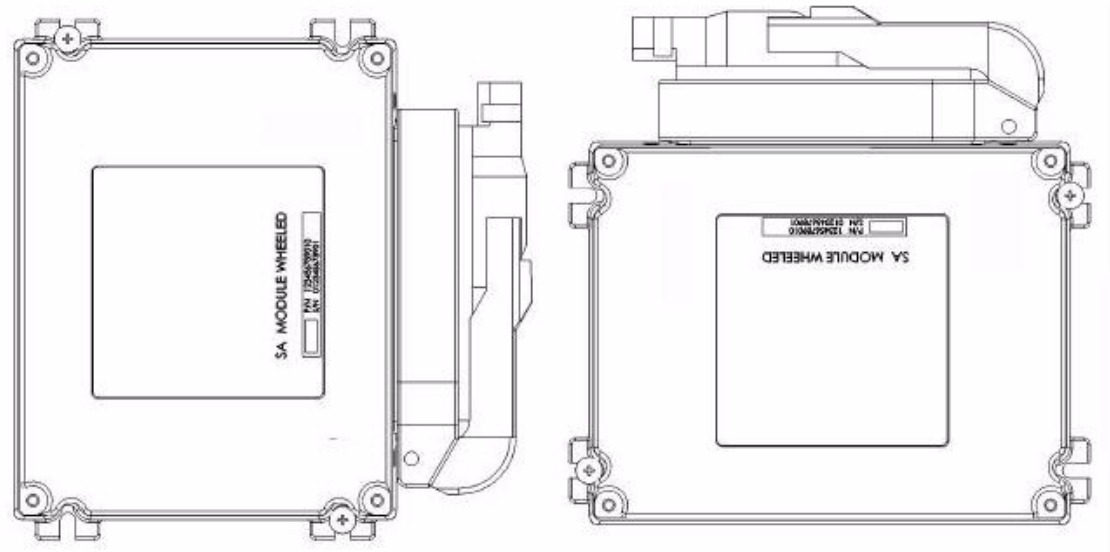


Figure 3-6 Incorrect SA Module Orientation



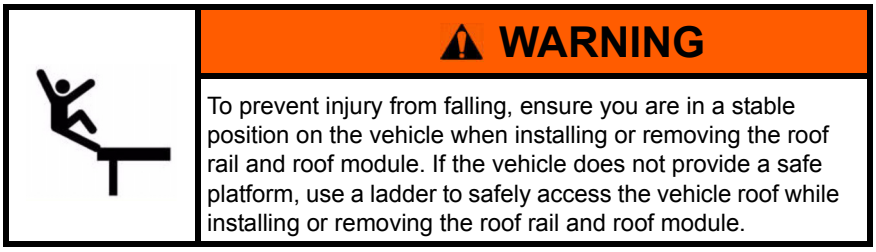
Roof Module Installation

This **Roof Module Installation** chapter contains information in the following sections:

- *Safety Notes*
- *Quick Release Rail Installation*

Safety Notes

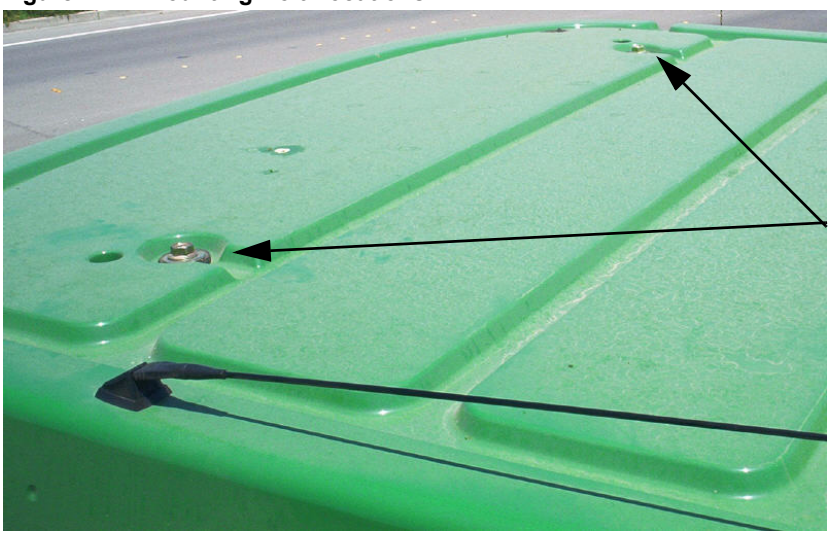
- The AutoSteer system must be powered OFF when installing or removing the Roof Module.
- The Roof Module must always be firmly secured to the roof rail using the hardware whenever the vehicle is in operation to prevent the roof module from releasing from its bracket and falling.
- The Roof Module must be removed when transporting the vehicle at speeds above 30 mph.
- Ensure you are in a safe position when attempting to access the cab roof. If necessary for safety, use a ladder to access the roof. Ensure you do not fall or drop the Roof Module.


WARNING
To prevent injury from falling, ensure you are in a stable position on the vehicle when installing or removing the roof rail and roof module. If the vehicle does not provide a safe platform, use a ladder to safely access the vehicle roof while installing or removing the roof rail and roof module.

Quick Release Rail Installation

1. Access the cab roof.
2. Locate the two bolts shown in *Figure 4-1* on each cab roof side. See *Figure 4-1*.
3. Remove the two bolts on each side. See *Figure 4-1*.

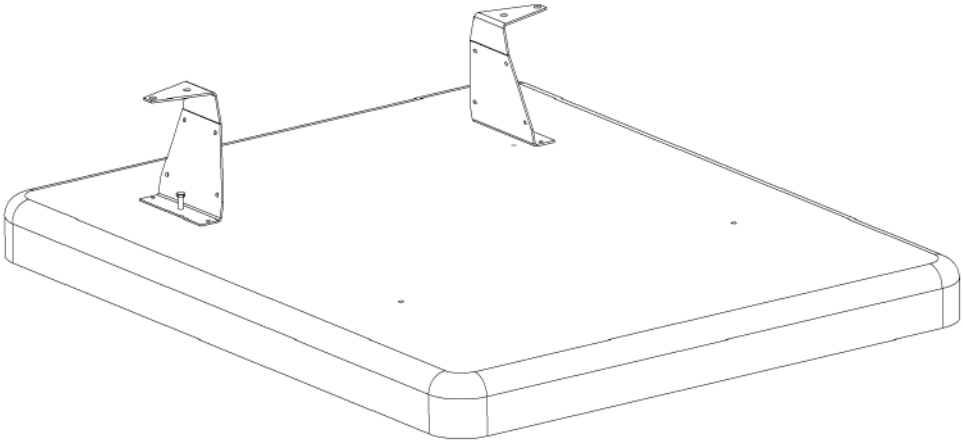
Figure 4-1 Mounting Bolt Locations



4. Align the mounting brackets to mounting holes and fasten the mounting brackets to the roof using the longer bolts and spare washers provided in the installation kit. See *Figure 4-2*.

Note: The bolt attaching the roof bracket to the cab roof screws into a lowered channel on the roof surface. Place enough fender washers on the bolt hole under the bracket to make the top fender washer flush with the bottom of the bracket when the bracket is placed on the roof. These washers keep the roof from being bent as the bracket bolt is tightened.

Figure 4-2 Roof Module Mounting Brackets



5. Tighten the bolts using a 24mm socket and ratchet. See *Figure 4-3*.

Figure 4-3 Tightening Roof Module Bracket Bolts

6. Place the quick attach rail on top of the washers and center it over the cab.
7. Attach the roof module rail to the mounting brackets bracket using bolts, nuts and washers supplied. See *Figure 4-4*.
8. Tighten the bolts securely with a 24mm socket and ratchet. See *Figure 4-4*.

Figure 4-4 Mount Rail on Brackets

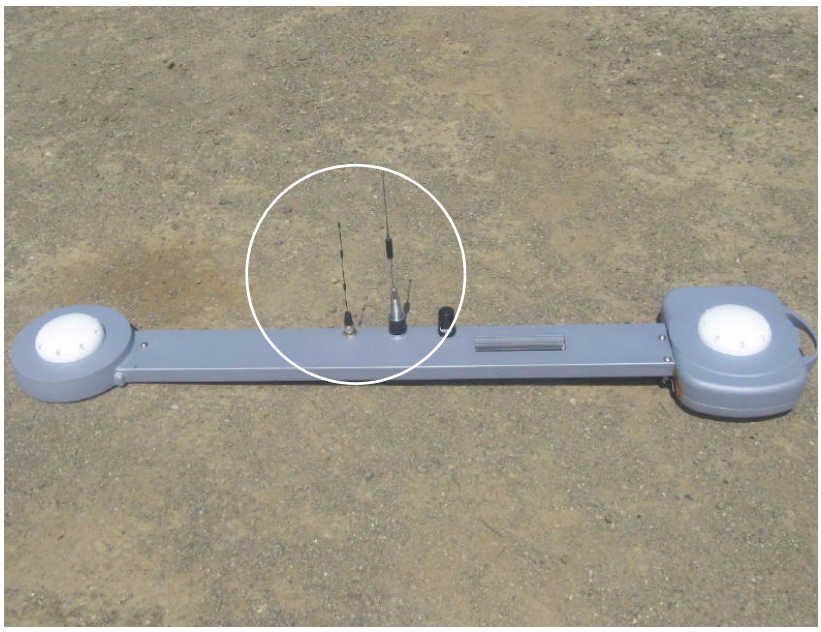
9. The roof module rail is now installed on the brackets. See *Figure 4-5*.

Figure 4-5 Quick Release Rail Mounted on Brackets

10. Attach the three antennas to the proper roof module antenna connections. See *Figure 4-6*.

Note: Hand tighten the connections. Do not over tighten.

Figure 4-6 Attach the Antennas



11. Place the roof module on the quick attach rail. See *Figure 4-7*.

Figure 4-7 Mounting Roof Module on Rail

12. Insert the locking pin into the quick attach rail. See *Figure 4-8*.

Note: Press the button on the end of the pin handle to enable pin insertion.

Figure 4-8 Inserting the Locking Pin

13. The roof module is now installed. See *Figure 4-9*.

Figure 4-9 Roof Module Installed

Display Installation

This **Display Installation** chapter contains information for installing and adjusting the Display in the following sections:

- *Introduction*
- *Installation Procedure*

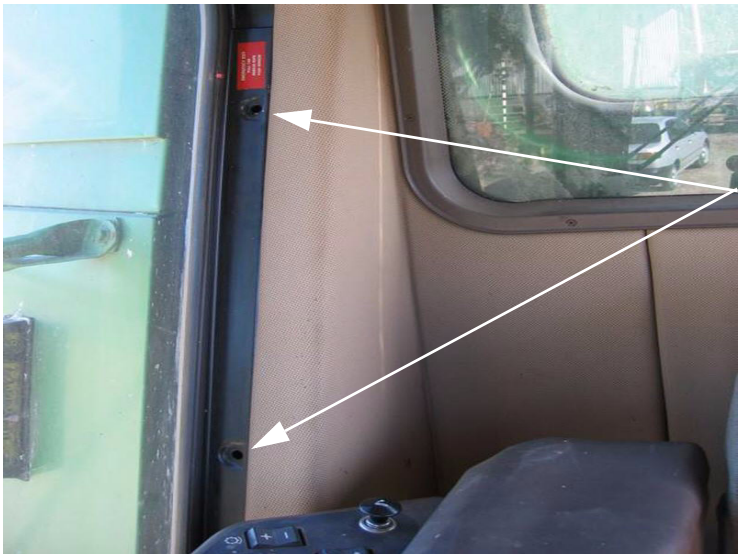
Introduction

Note: The display components may be different depending on the model vehicle the installation is being performed upon.

Installation Procedure

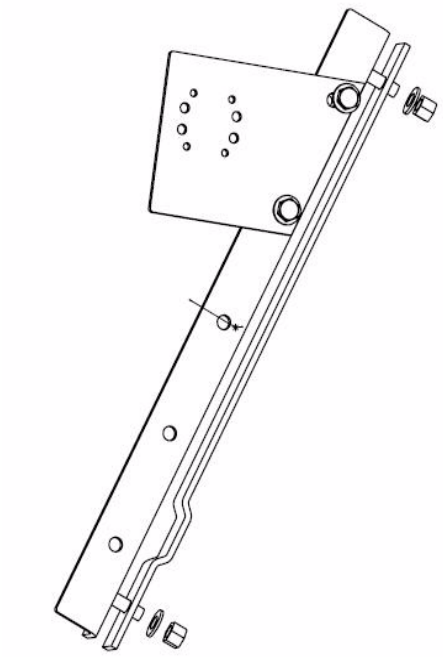
1. Locate the bolts holes on the right cab rear. See *Figure 5-1*.

Figure 5-1 Remove Plastic Mounting Hole Covers



2. Mount the bracket assembly. Adjust the bracket height by selecting different bracket bolt holes as necessary. See *Figure 5-2*.

Figure 5-2 Display Mounting Bracket

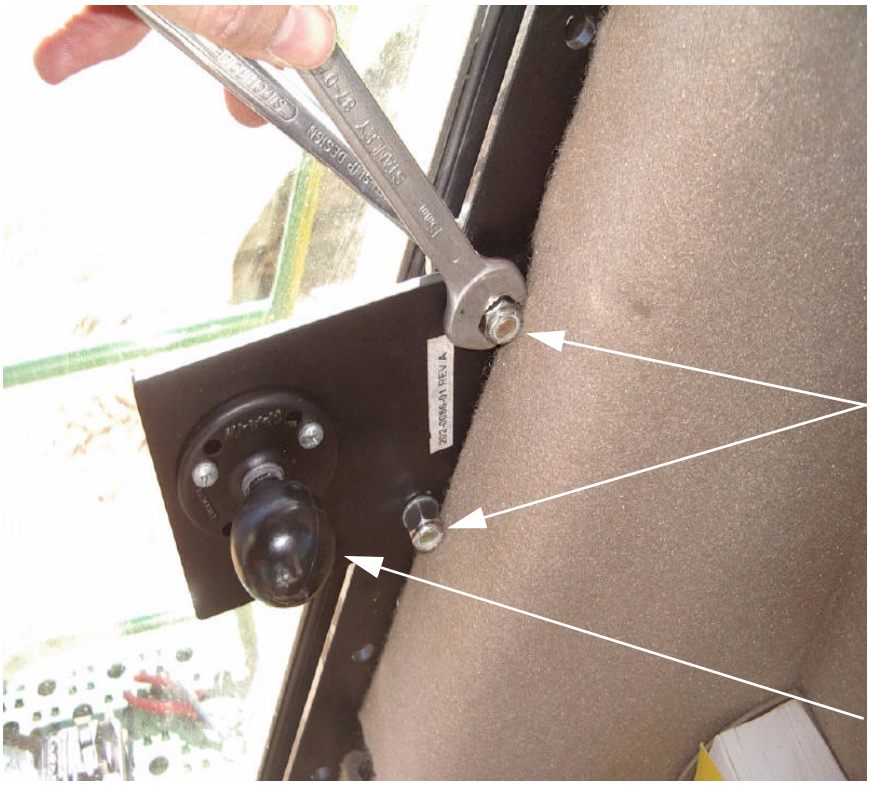


3. Install the RAM Mount base ball (1-1/2” diameter) on the bracket. See *Figure 5-3*.

4. Secure the RAM base using four 10-32x3/4 Phillips screws and locknuts. See *Figure 5-3*.

5. Install the Display bracket using the two bolts provided. See *Figure 5-3*.

Figure 5-3 Mounting Display Bracket (shown with Ram Base installed)



6. Secure the display to the Ram Base using the mount arm.
7. Loosen the wing nut to adjust the monitor position and viewing angle.

Note: Refer to the display User Manual for the remaining display specific installation instructions.

Connecting System Cables

This **Connecting System Cables** chapter provides information in the following sections for connecting the Main Cable Harness and the SA Module Cable Harness to various vehicle and AutoSteer components:

- *SA Module Harness*
  - *SA Module Connection*
  - *Wheel Angle Sensor Connection*
    - *Disconnecting Flow Meter Sensor*
    - *Optional AutoSteer Wheel Angle Sensor*
  - *Steering Wheel Sensor Connection*
  - *Electrohydraulic Steering Valve Connection*
- *Main Cable Harness*
  - *Roof Module*
  - *Display*
  - *SAM Harness*
  - *Cab Power*

SA Module Harness

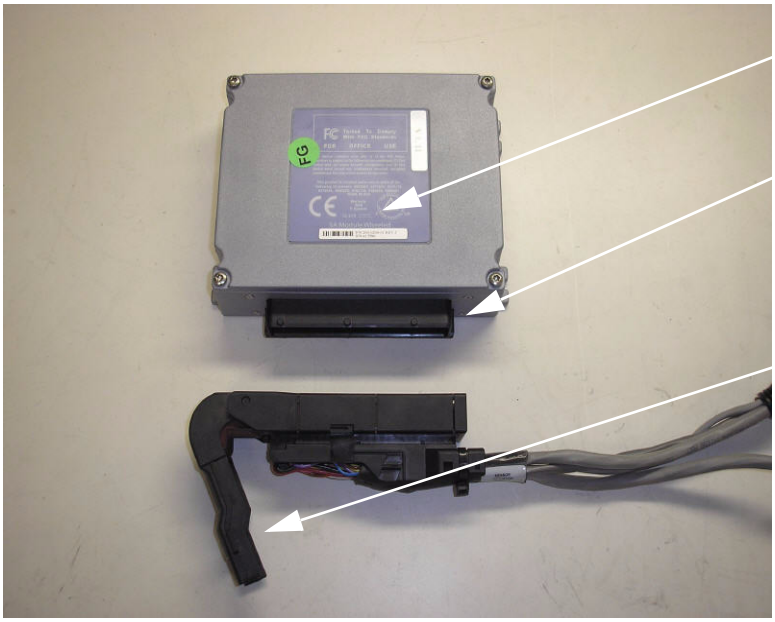
This **SA Module Harness** section contains the following sub-sections:

- *SA Module Connection*
- *Wheel Angle Sensor Connection*
- *Electrohydraulic Steering Valve Connection*

SA Module Connection

1. Align the SAM Harness connector to the SA Module. See *Figure 6-1*.
2. Open the connector latch lever. See *Figure 6-1*.

Figure 6-1 Connecting SA Module Connector



3. Press the harness connector onto the SA Module connector.

Note: You can damage the connectors if your force them into position. Do not force them together or use tools.

---

4. Press the latch lever closed until it clicks and locks the connector. See *Figure 6-2*.

Figure 6-2 Closing the SA Module Connector

Note: If you need to disconnect the SA Module connector, you must open the latch lever before attempting to pull the connectors apart.

5. Close the cable connector locking mechanism as shown in *Figure 6-3*.

Figure 6-3 SA Module Connector (closed).

6. Route the cable toward the cab behind the right hand side window for connection to the Main Cable Harness.

7. Route the other half of the SAM harness under the cab towards the steering valve and wheel angle sensor.

8. Proceed to the *Wheel Angle Sensor Connection* procedure.

Wheel Angle Sensor Connection

This Wheel Angle Sensor Connection section contains the following sub-sections:

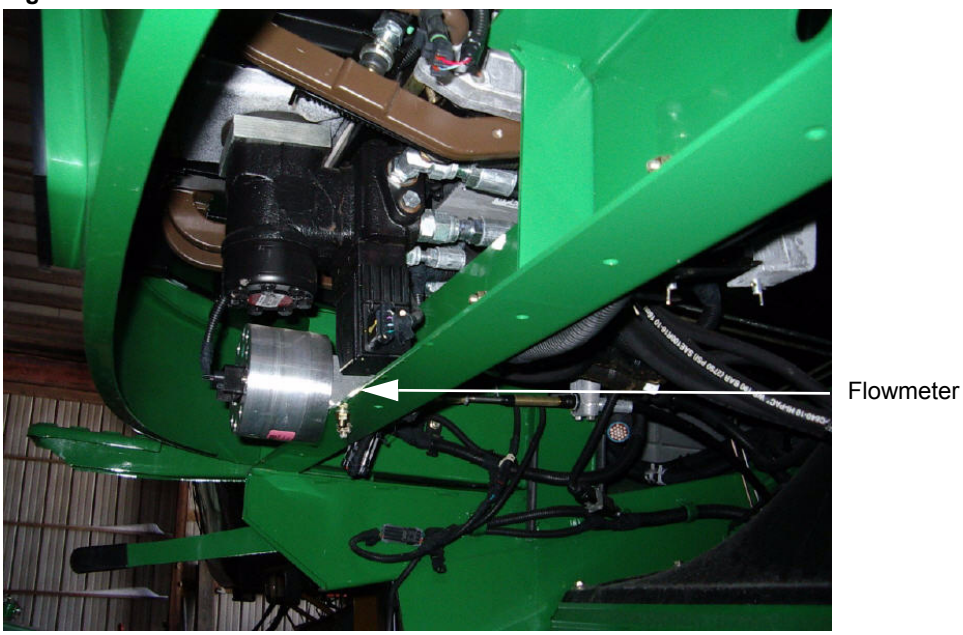
- *Disconnecting Flow Meter Sensor*
- *Optional AutoSteer Wheel Angle Sensor*

Note: There are differences in Wheel Angle Sensor adapter cables and connector terminators for vehicles within the series this manual supports. See the *Termination Kit* section of the *Installation Overview* chapter of this manual for additional information.

Disconnecting Flow Meter Sensor

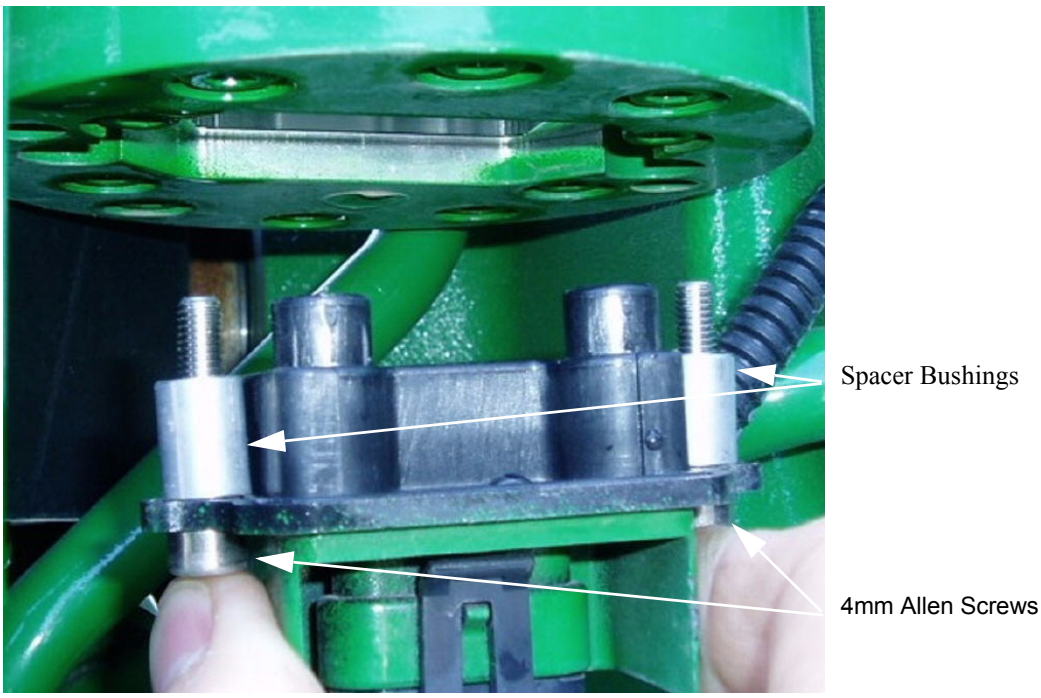
1. Locate the JD Flowmeter and connector under the cab front.

Figure 6-4 Flowmeter Location



2. Unscrew the existing connector and sensor assembly using a 4 mm Allen Key wrench. See *Figure 6-5*.
3. Remove the sensor assembly and insert the two spacer bushings supplied with the installation kit. See *Figure 6-5*.

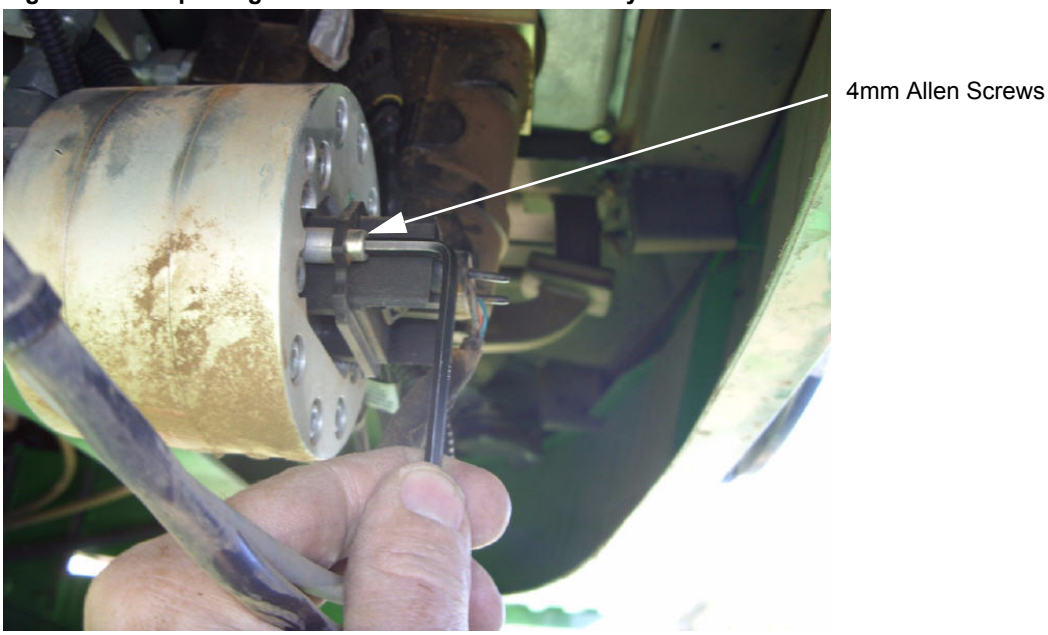
Figure 6-5 Removing Flowmeter Sensor Assembly



4. Replace sensor assembly. See *Figure 6-6*.

Note: Use the two longer screws provided in the installation kit.

Figure 6-6 Replacing the Flowmeter Sensor Assembly



Optional AutoSteer Wheel Angle Sensor

1. Route the wheel angle sensor along the right side of the combine frame, following the steering hydraulic hoses. Secure with cable ties.

Note: Keep all cables away from moving parts. If SA module harness does not reach the wheel angle sensor, extension harness, part number 201-0120-01, is available.

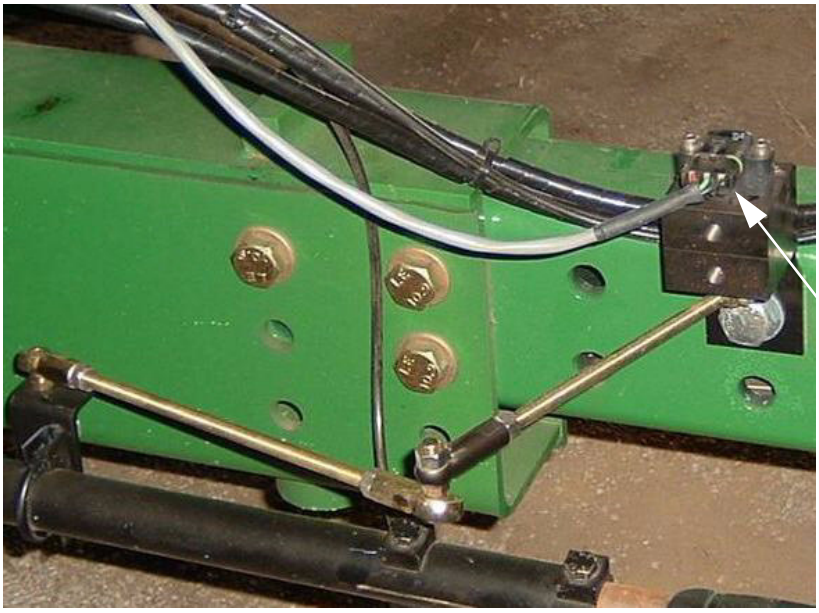
Figure 6-7 Routing Wheel Angle Sensor Cable Along Hydraulic Lines

SA Module

WAS Cable Routing Path

2. Attach the cable to the Wheel Angle Sensor. See *Figure 6-8*.

Figure 6-8 Wheel Angle Sensor Connection



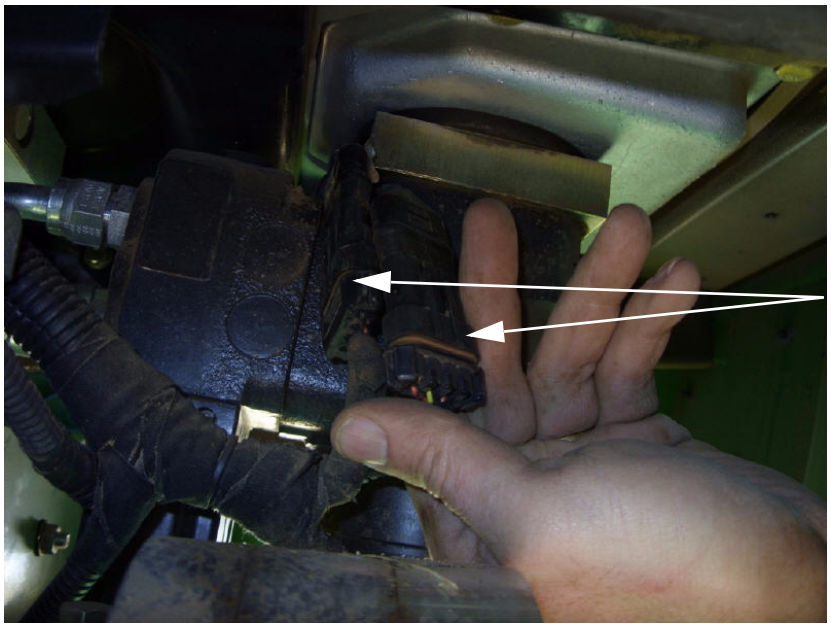
Wheel Angle Sensor Connector

3. Secure all cables with cable ties.

Steering Wheel Sensor Connection

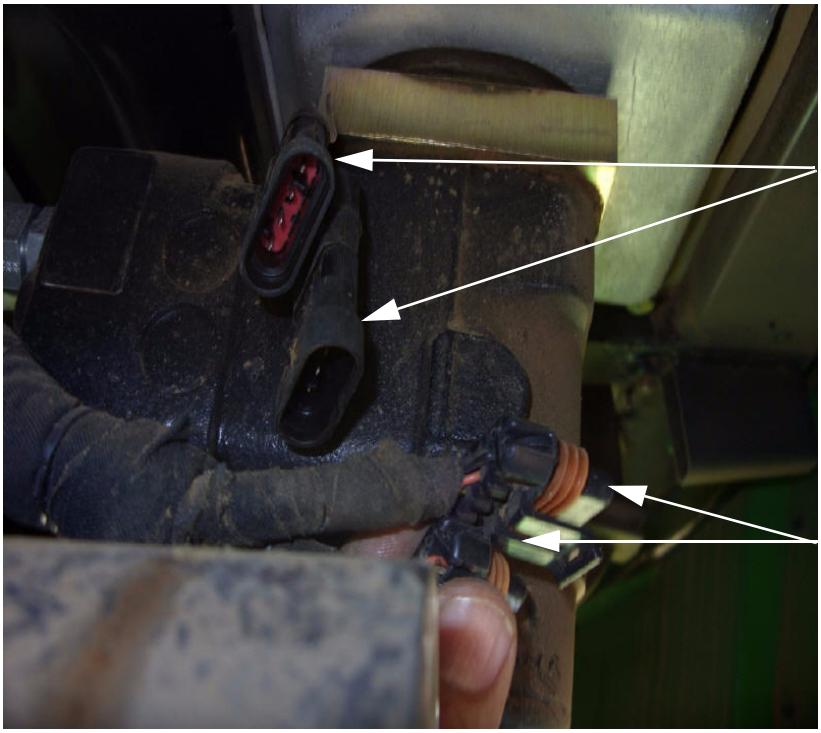
1. Locate the existing John Deere steering encoder connectors positioned under the cab near the Orbitrol. See *Figure 6-9*.

Figure 6-9 Steering Encoder Connector Location



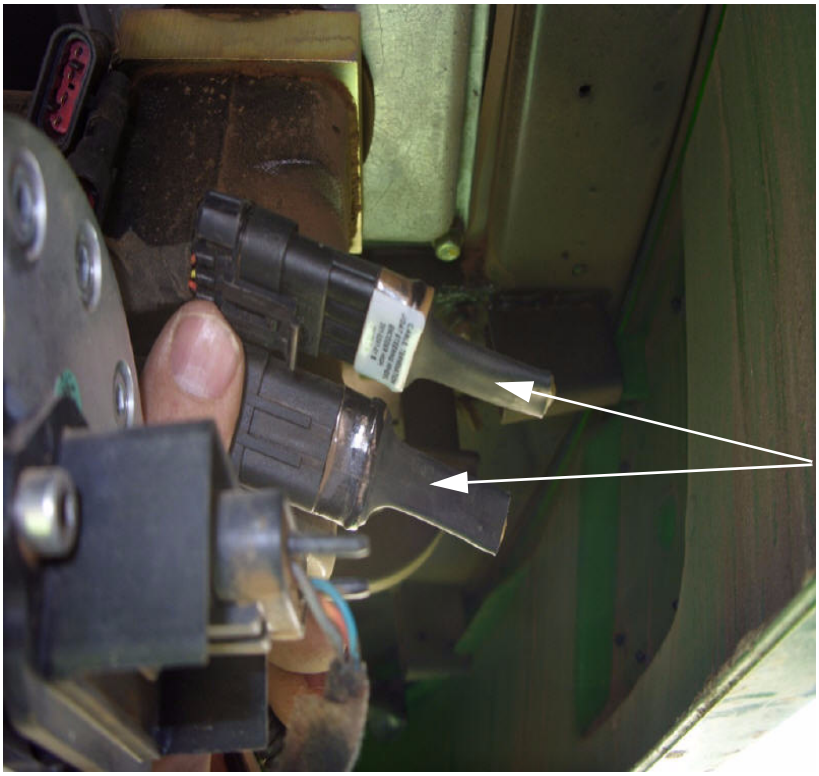
2. Free the connectors so they can be accessed.
3. Disconnect the steering wheel encoder connectors.

Figure 6-10 Steering Wheel Sensor Connectors Disconnected



4. Install terminator connectors on the two steering encoder vehicle harness connectors. See *Figure 6-11*.

Figure 6-11 Steering Encoder Terminator Connectors



5. Connect the AutoSteer cable to one of the Steering Wheel Sensor connectors. See *Figure 6-12*.
6. Put a dummy connector on the unused Steering Wheel Sensor connector.

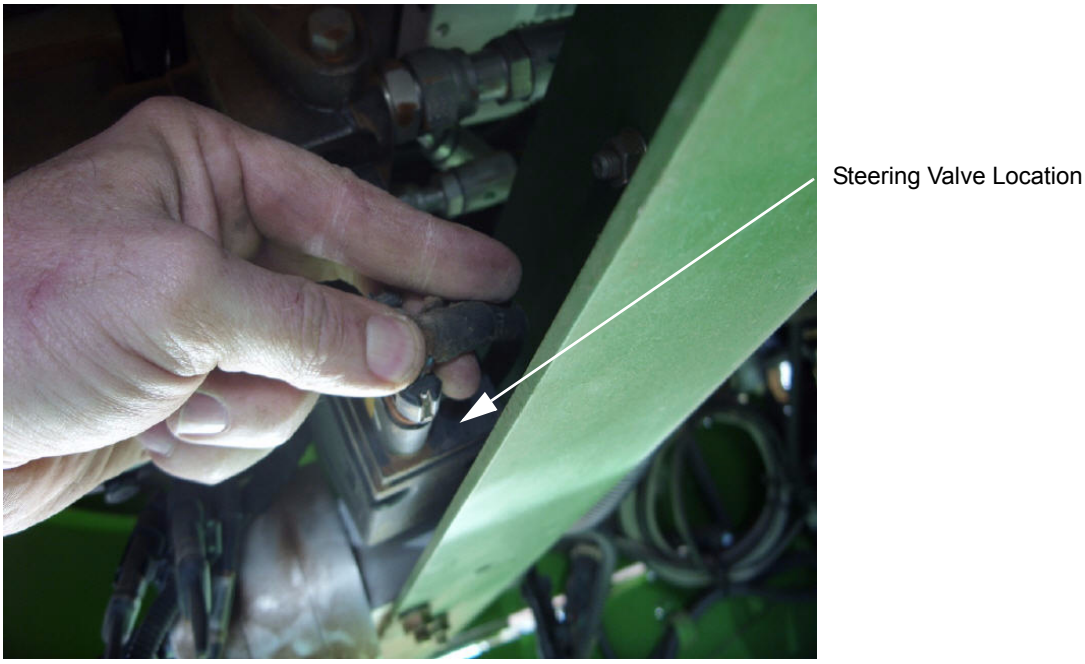
Figure 6-12 Connecting SAM Harness to Steering Wheel Sensor Connector

7. Ensure all the connectors are properly reconnected and all screws and bolts are properly tightened.

Electrohydraulic Steering Valve Connection

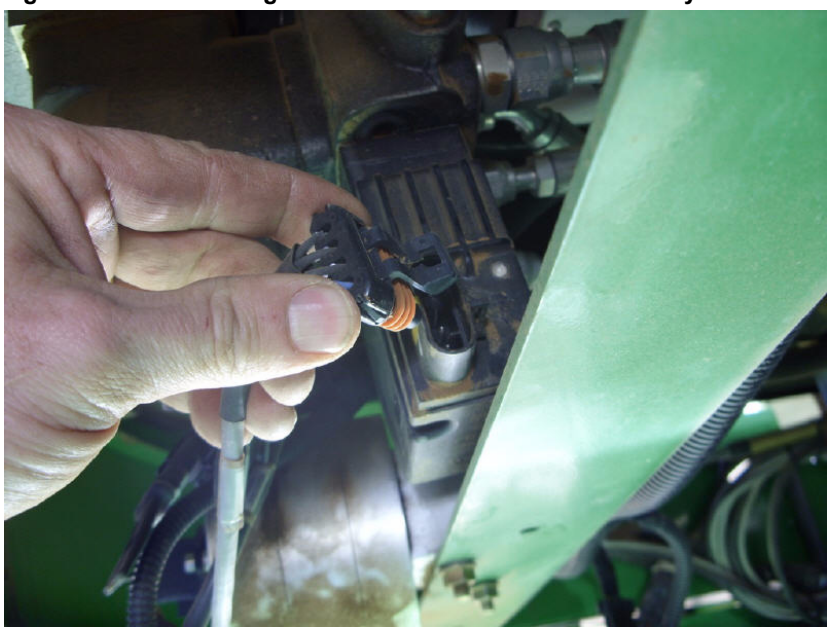
1. Identify the location of the Electrohydraulic Steering valve. It is located adjacent to the Orbitrol. See *Figure 6-13*.

Figure 6-13 Electrohydraulic Steering Valve Location



2. Route and connect the AutoSteer SA Module Harness to the Electrohydraulic Steering valve. See *Figure 6-14*.

Figure 6-14 Connecting SA Module Harness to the Electrohydraulic Valve



3. Secure the SA Module Harness cable from the SA Module to the electrohydraulic valve using wire ties.
4. Place a cap on the vehicle harness cable end which was disconnected from the valve to avoid connector contamination.

Note: The cap is provided attached to the cable in your installation kit.

Main Cable Harness

This **Main Cable Harness** section contains the following sub-sections:

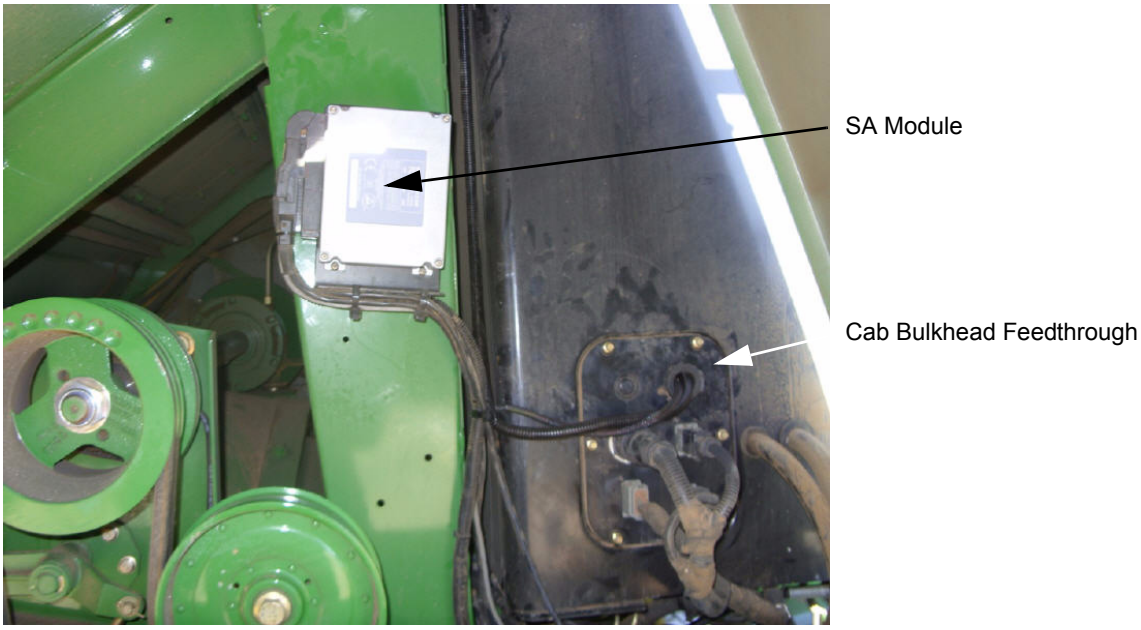
- *Roof Module*
- *Display*
- *SAM Harness*
- *Cab Power*

Roof Module

1. Route the Main Cable Harness cables out through the cab bulkhead. See *Figure 6-15* and *Figure 6-18*.

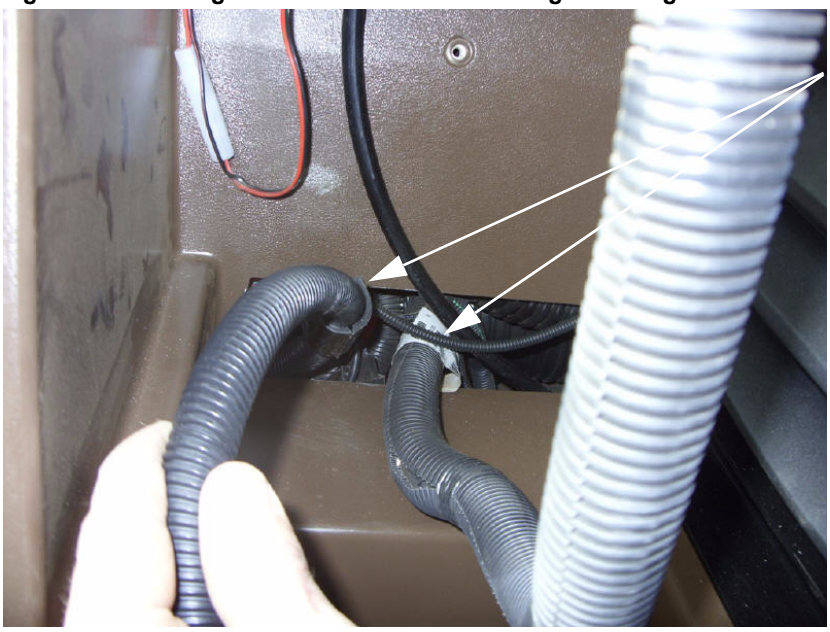
Note: The cab bulkhead feedthrough is located behind the plastic panel directly above the right front vehicle tire. You need to open and lift the panel to access the cab bulkhead feedthrough. Once the panel is lifted you can see the cab bulkhead feedthrough just to the right of the SA Module. See *Figure 6-15*.

Figure 6-15 Cab Bulkhead Feedthrough Location



2. Pull harness through slot in cowling next to seat. Leave the bulk of unused harness behind cowling. See *Figure 6-16*.

Figure 6-16 Pulling Main Harness Cables Through Cowling



3. Remove the six (6) bulkhead panel screws to loosen the panel for easier cable transfer through the bulkhead. See *Figure 6-17*.

Note: Use the rubber grommet provided in the Installation kit to protect the cables.

Figure 6-17 Bulkhead Panel Detached

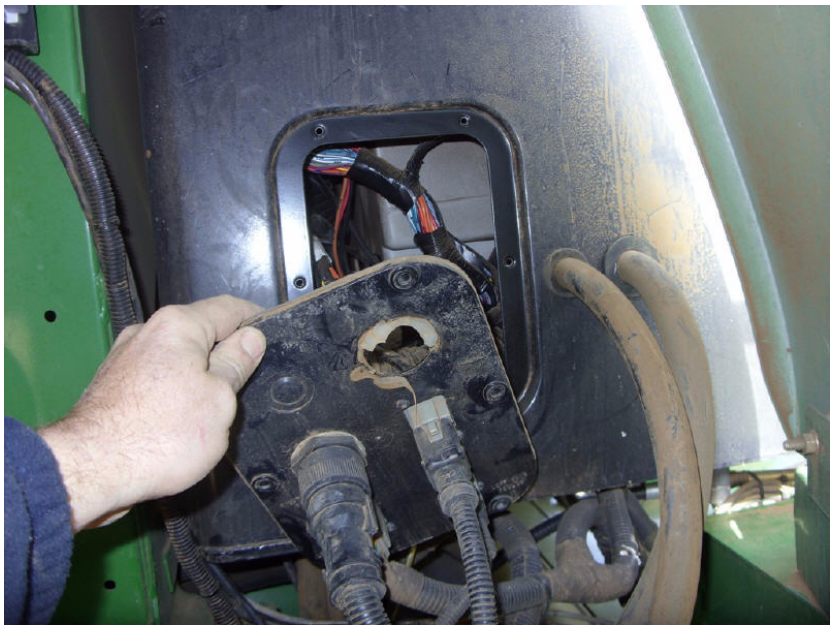
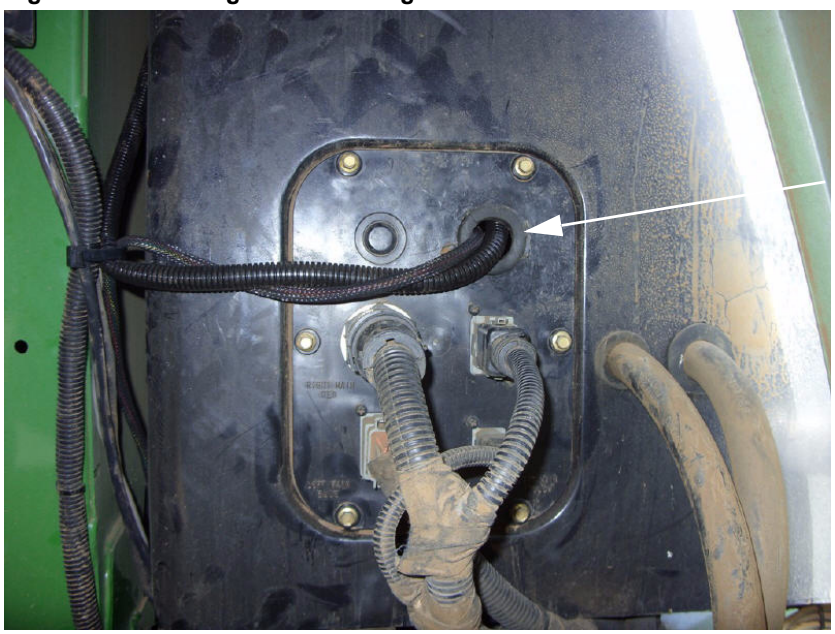


Figure 6-18 Routing Cables Through the Cab Bulkhead



4. Route the antenna cable up the right hand side of the rear of the cab. See *Figure 6-19*.

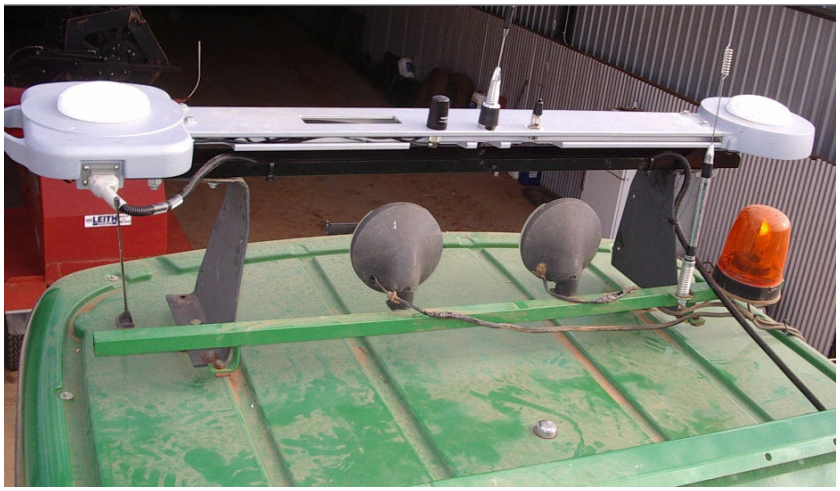
Figure 6-19 Routing Antenna Cable up Cab

5. Attach cable to roof using a "P" clamp. See *Figure 6-20*.

Figure 6-20 Secure Main Harness to Cab

6. Route the harness across the roof and along the rail to the roof module connector. See *Figure 6-21*.

Figure 6-21 Routing Main Cable Harness Cable Across Roof Module Rail



7. Connect the Main Harness to the Roof Module connector. See *Figure 6-22*.

Figure 6-22 Connecting the Main Harness to Roof Module

8. Connect the Ethernet cable to the Roof Module. See *Figure 6-23*.

Figure 6-23 Roof Module Ethernet Connection

9. Route the main harness towards the back of the cab roof along the roof rail. See *Figure 6-24*.

10. Route the cable down the right side of the cab. See *Figure 6-24*.

Figure 6-24 Routing the Main Cable Harness (different vehicle shown)

Display

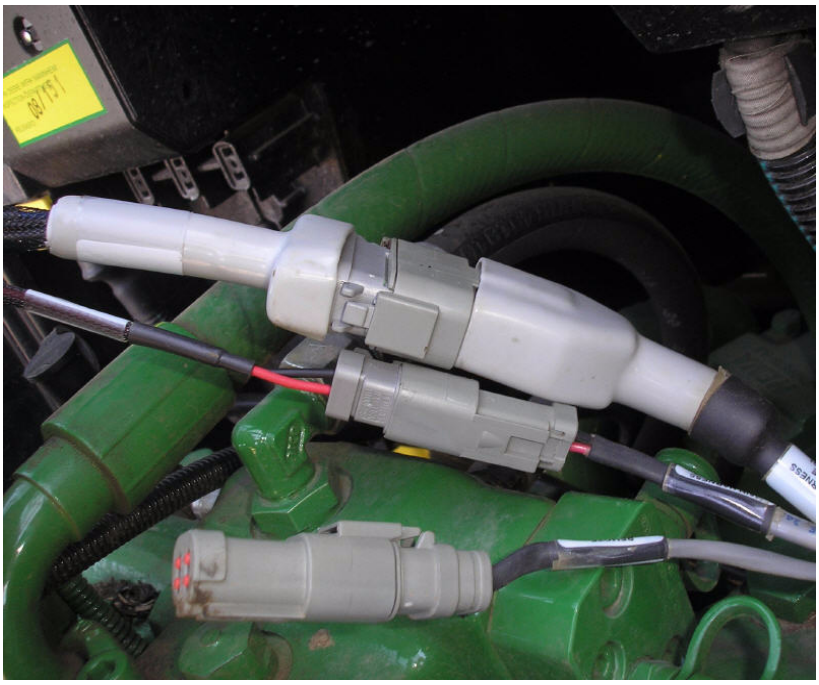
1. Attach the Main Cable Harness to your display harness.

> **Note:** Refer to your Display Owners manual for details on connecting the display harness.

SAM Harness

1. Connect the 12-pin data and 2-pin power connectors between the Main Cable Harness and the SAM Harness. See *Figure 6-25*.

Figure 6-25 SAM Harness to Main Cable Harness Connections (different vehicle shown)

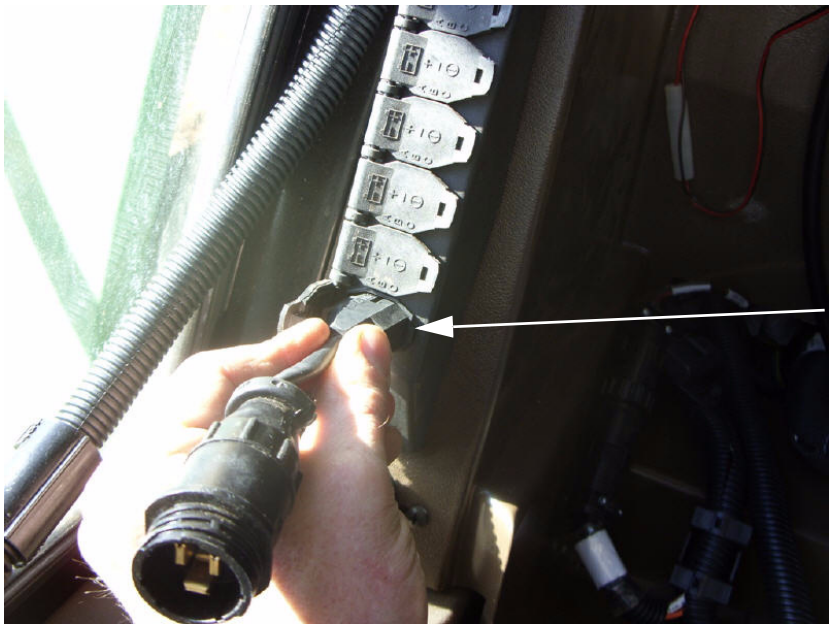


Cab Power

Note: The steps listed below show the procedure for connecting to the power outlet inside the cab. If you are not using the power outlet inside the cab refer to your display User Manual for cab power connection instructions.

1. Connect power adaptor (John Deere part number: RE67015) into the power strip on the cab right hand side.

Figure 6-26 Cab Power Adapter Cable

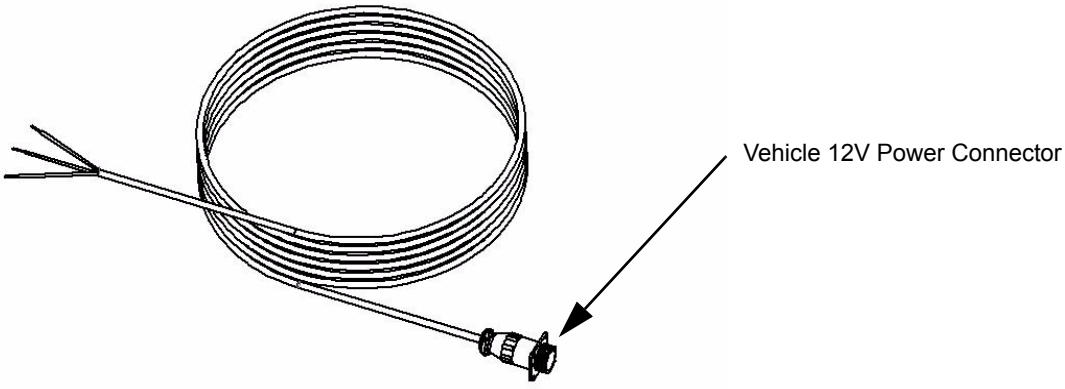


2. Connect main harness to power adaptor. See *Figure 6-27*.

Figure 6-27 Main Harness Connected to Power Adapter Cable

Note: If a 12V electrical outlet is not available in the cab, you can connect the power adapter cable (PN: 201-0156-01) directly to the battery or a 12V source in the cab that can safely supply up to 15A. See *Figure 6-28*.

Figure 6-28 Power Cable Adapter



3. Connect both the Red (+) and Black (-) power cable adapter wires to 12 volt power on the vehicle protected by a 20 amp fuse. *Table 6-1* shows the Power Cable Adapter pinout.

Table 6-1 Power Adapter Cable Pinout

Wire Color	Function
Red	12 V Unswitched Power
White	12V Switched Power
Black	Ground

Final Hardware Installation Checklist

This **Final Checklist** chapter contains the verifications steps necessary after the installation of the AutoSteer system.

Note: The Final Hardware Installation Checklist is on the back of this page. Tear this page out of your manual and fill in the checklist after the installation. You should keep a copy of this checklist for future reference when servicing the vehicle.

Machine Model: _____ Year: _____ Serial #: _____

Customer Name: _____

Location/Address: _____

AutoSteer Installation Kit Part Number: _____

NOTES

_____

_____

_____

_____

_____

_____

Name of Installer: _____ Date: _____

System Installation Checklist

1. Wheel Angle Sensor Installed and all fasteners are tight. (optional) ☐
2. Monitor Bracket Installed and all fasteners are tight. ☐
3. Roof rail is installed and all fasteners are tight. ☐
4. SA Module is installed and all fasteners are tight. ☐
5. All cable ends are connected. ☐
6. All cables are secured with cable ties. ☐

AutoSteer Performance Checklist

1. Complete AutoSteer system calibration. ☐
2. Complete AutoSteer system tuning. ☐
3. Check total wheel angle sensor counts. ☐ Value_____
4. Line acquisition is good. ☐
5. On-line steering is good. ☐
6. Manual override (kick-out) is working. ☐
7. Steering speed from lock-to-lock is satisfactory. ☐ Value_____Sec.

Note: See the *Calibration and Tuning Notes* chapter for additional information.

Calibration and Tuning Notes

This **Calibration and Tuning Notes** chapter contains information for starting the Calibration and Tuning procedures in the following sections.

- *Vehicle Specific Installation Calibration and Tuning Guidelines*

Vehicle Specific Installation Calibration and Tuning Guidelines

Note: For optimal steering performance, the AutoSteer system must be fully calibrated and then tuned.

Select the appropriate John Deere AutoTrac vehicle model during the vehicle setup process to establish initial calibration and tuning parameters. Refer to your Display user manual for vehicle setup procedure details.